Textile World Journal

Textile World Journal

Textile World Record—Textile Manufacturers Journal

Published every Saturday by

THE BRAGDON, LORD & NAGLE CO., INC.

H. G. Lord, President	Frank L. Nagle, Chairman	J. H. Bragdon, Treasurer
C. H. Clark, Vice-Pres.	S. H. Steele, Vice-Pres.	H. O. Barnes, Secretary

NEW YORK (PUBLICATION OFFICE),
334 Fourth Avenue at 25th Street

Telephone—Madison Square 1566

Boston.....144 Congress St.
Philadelphia.....828 Drexel Bldg.
Chicago.....1723 Lytton Bldg.
Greenville, S. C.....Masonic Temple
Washington, D. C.....63 Home Life Bldg.

Entered at the New York, N. Y., Post Office as Second Class Mail Matter

SUBSCRIPTION RATES PER YEAR

United States and Mexico.....$3.00
Canada (on account of extra postage)..... 4.00
Other Foreign Countries postage prepaid..... 5.00

Official American Textile Directory, with Subscription $2.00 extra

Remit by Express or Postal Order

EDITORS

C. H. Clark V. E. Carroll Clarence Hutton

A TENET OF OUR CREED: WE BELIEVE IN THE CONSERVATION OF AND PROTECTION TO DOMESTIC INDUSTRIES.

Vol. LV January 11, 1919 No. 2

PARAMOUNT in importance as a development of the war and of increasing significance as a post-war influence is the question of export trade in textiles. Consideration as to how the volume of foreign business, thrust upon us as a result of war conditions, is to be maintained, is occupying the minds of all who are looking to the markets in other countries as outlets for domestic products. Possibilities are acknowledged to be enormous, provided advantage is taken of the opportunities that will of necessity present themselves.

Export Activity Versus Loss of Domestic Trade

But however much export trade may occupy the attention of American merchants and manufacturers, there is an element which enters into international relations which deserves most serious thought and earnest consideration. Are we in danger, through the centering of thought and effort upon expansion abroad, of losing sight of a more imminent danger at home? It has been declared that the diversion to war needs of machinery previously employed exclusively in producing for the civilian needs of the world, the restriction of production by labor scarcity and by the destruction of plants and machinery, the interruption of distribution caused by destruction of shipping and utilization of the major portion of available tonnage for war purposes, have created such a vacuum throughout the world that it will require several years of maximum production to satisfy the enormous latent demand. Admitting that this view is correct, is it not an ostrich-like view of the situation to assume that our foreign competitors will forget the United States market and devote their whole attention to poorer export markets? Where in all the world is there a more favorable outlet for their merchandise than the United States? Today we are practically the only country in the world whose "consuming capacity has not only been unimpaired by the war, but whose resources have been increased by the events of the last four years. Added to this is the most important and significant fact that the barrier to the entrance of these goods to American markets is a practically negligible one. With the lowest tariff duties in a generation what is there to prevent Great Britain, with her rehabilitated textile plants, with wages that, while showing a marked increase over the pre-war basis, do not approximate the basis in this country, and possessing raw materials which in instances are far below the plane of prices American manufacturers are compelled to pay, from making a successful drive for the richest market in the world, which will afford the wherewithal to liquidate the war indebtedness of that country? This is a problem for legislators as well as for industrial leaders and only through their co-operation can the possible dangers involved in current conditions here and abroad be averted.

* * *

THAT wool control had saved the industry from tremendous loss during the readjustment period would have been freely admitted a few weeks ago by nearly every factor in the trade, from grower to retail clothier, and this was the only beneficial result of this badly muddled piece of war work that all were agreed upon. After two series of Government wool auctions manufacturers are less certain that they have escaped serious losses, and some domestic growers, who will soon have to find a market for their new clips, are also becoming nervous.

Muddling of Wool Control Places Industry in Serious Position

If the auctions had been conducted as manufacturers and dealers suggested, without price restrictions, there would have been a sudden sharp drop in values to a basis approximating British issue prices, and then a steady recovery based upon absolute confidence in the future strength of values and a good demand. Either this or some other method of quickly liquidating Government-owned wools will have to be adopted, or the industry will be prostrated. Already curtailment of production is rapidly increasing and labor is commencing to complain. The Administration wants high wages maintained and labor employed, yet it allows the War Department to adopt a policy in liquidating wool that cannot fail to throw operatives out of work and ultimately undermine wages; and all for the sake of saving a loss on its holdings that may not equal the possible loss in wages to wool mill help.

* * *

PEACE terms that would allow Germany relatively as free access to supplies of raw materials as is accorded to the direct victims (France and Belgium) of her commercial lust would be an economic crime as monstrous as Germany's deliberate industrial rape of those countries. The intimation that the administration and our delegates to the Peace Conference favor such a policy is incredible. The bestowal of such a favor at the peace table would score a tremendous victory for Germany, for it was one of her chief war objectives. The delegates responsible for such a gift would make their country a partner in Germany's crime; furthermore, they would give Germany the power, that would otherwise be denied, of completing this crime through the permanent crippling of the commerce of Belgium and Northern France.

Must Allow Germany No Economic Victory

Of course Germany must have raw materials, but only under such skilfully planned restrictions that she shall not be able to profit in the slightest degree from her systematic destruction of industrial France and Belgium. More liberal treatment would cause those countries further suffering in direct proportion to the aid it gave Germany. Why should France and Belgium be penalized in the slightest degree that Germany may be allowed the more quickly and easily to pay a heavy war indemnity? Of what importance can it be to us and our Allies if the period of payment is protracted?

Germany ought not only to be forced to pay adequate damages for destruction wrought, but should be obliged also to expiate her industrial crimes (at least) in kind. Her deliberate purpose in destroying the industries of Belgium and Northern France was to rob them permanently of their business. We do not advocate such retributive justice as to seize or destroy an equal proportion of German industry, but anything that stops short of making it possible for Belgium and France to resume business on equal terms with Germany will be as heinous an economic crime as was that deliberately planned by the Huns.

* * *

POSSIBLY it is true, as some critics claim, that the textile industry is unprogressive in its handling of the labor problem, but it can defy any other industry in the country, or the textile industry of any other country, to show a better record in welfare work, in freedom from serious labor troubles, in the adoption of sound plans for the betterment of social and living conditions, or in the percentage of wage advances during the war.

Problems of Industrial Relations Call for Prompt Solution

When analyzed it is found that the criticism mentioned is directed principally at the arrogant attitude of textile manufacturers toward union labor. This has not been true of manufacturers in such centers of unionism as New Bedford and Fall River, at such times as the unions have had able and responsible leadership, but no doubt it hits the bull's-eye in most instances and it will continue to be the attitude of most mill men until the textile unions demonstrate that they are worthy of trust. Certainly such a camouflaged movement as that involved in the demand of the United Textile Workers for an eight-hour day, or 48-hour week, cannot stimulate increased confidence in the unions.

The really vital problem of industrial relations faced by textile manufacturers is not one concerned with organized labor, but in finding some means that in large plants will take the place of the personal contact and mutual confidence and esteem that exists in so many small organizations between mill officials and operatives. With the example fresh in their minds of what can be accomplished by a common patriotic incentive, to bring employer and employe together in cordial co-operative effort, manufacturers will approach with new zest the study of methods by which this fraternal spirit may be perpetuated. It is not a problem to be solved between organized labor and organized employers as such, for it is of equally vital import to the unorganized, and it is a subject of far greater importance to organized labor than the eight-hour day.

Eight Weeks in Great Britain and France

The Story of a Visit to Historic Ground in November and December

By *Henry G. Lord, President of the* TEXTILE WORLD JOURNAL

This is the third article of a series written by Mr. Lord, of the Textile World Journal, who has been visiting England, France and Belgium in company with fourteen other publishers and editors of leading trade and technical journals, at the invitation of the British Ministry of Information.

In this article he gives a general story of the trip, with some impressions of general conditions since the armistice. The series will be continued in subsequent issues of the Journal.

ONLY those civilians who have tried to get passports and permission from the American and British Governments to visit England during the war on any except strictly official business, know the extreme difficulty, in fact almost impossibility of accomplishing their purpose. Every ship was under Government control and civilian passengers were not desired.

These difficulties and restrictions had reduced civilian visits to a minimum, and in order to give an opportunity for wider knowledge of conditions the British Ministry of Information extended to a group of business and trade journal publishers and editors representing varied industries, an invitation to visit England and France that they might see these countries in war time from the civilian point of view. The group comprised:

Horace M. Swetland, President United Publishers' Corporation, New York.

Arthur J. Baldwin, Vice-President McGraw-Hill Publishing Co., New York.

Henry G. Lord, President TEXTILE WORLD JOURNAL, New York.

Roger W. Allen, President New York Business Publishers' Association, Inc. *American Hatter, Millinery Trade Review,* and *Nugent's—The Garment Weekly,* New York.

David Beecroft, Directing Editor of the Class Journal Co., New York.

H. L. Aldrich, Publisher *Marine Engineering* and *The Boiler Maker,* New York.

Samuel O. Dunn, Editor *Railway Age,* Chicago.

Wm. W. Macon, Managing Editor *The Iron Age,* New York.

H. C. Parmelee, Editor *Chemical and Metallurgical Engineering,* New York.

Floyd W. Parsons, Editor *Coal Age,* New York.

H. E. Taylor, Business Manager *Dry Goods Economist,* New York.

Frederick F. Cutler, President *Shoe and Leather Reporter,* Boston.

H. Cole Estep, Editorial Director Penton Publishing Co., Cleveland.

Allen W. Clark, President American Paint Journal Co., St. Louis.

Edw. H. Darville, *Hardware Age,* New York.

None of the party which sailed on Oct. 26 had any idea that peace was so near at hand. We arrived in London only three days before the armistice was signed and had the good fortune to witness the wonderful celebration and rejoicing on that great day when the long restrained emotions and deep feelings of the reserved Britishers gave way to demonstrations of joy and thanksgiving so earnest and heartfelt that tears were very close to smiles.

WAR CONDITIONS

But in those few days preceding the armistice, we got a good idea of some of the war conditions; the darkened streets, the drawn blinds and shades, early closing of restaurants, few busses and taxis—anti-air craft guns in the parks and squares, notices of shelter, the sirens for the alarm—these gave some impression of the atmosphere of constant menace under which England had been "carrying on" for four and one-half years.

We had felt the tension to some extent as we came across the ocean under convoy.

One so frequently heard in America the statement that we did not realize what it meant to be at war. I had thought that the United States was realizing it quite well during the summer and autumn months, but when we had embarked on the Lapland after the most exacting formalities of passports and examinations and dropped down the harbor to the lower bay to join the great fleet of camouflaged steamships assembling for the voyage, it came to one in a new sense that you were really inside the great zone of war activity and that it involved some possibility of personal danger. The people of England and France lived in that atmosphere of war activities, most of them unconscious of the feeling of apprehension or fear, just as we are unconscious of the noises of the street to which we are accustomed, but subconsciously under a strain which eventually gets on the nerves.

VOYAGE UNDER CONVOY

As we lay at anchor the following morning I counted forty-five ships, stretching in two long lines as far as one could see—a truly impressive sight.

Overhead, captive balloons kept watch and airplanes circled about, while destroyers patrolled on either side.

About noon the giant Leviathan passed through the fleet on her way to France carrying 11,000 American troops. She did not travel in convoy but depended on her great speed to elude the submarine in mid-ocean, and meeting her destroyer escort off the French coast.

When we awoke next morning we were at sea. The great fleet had split into smaller squadrons. We were one of fifteen ships under escort of an American cruiser and destroyer and carrying in all about 20,000 troops, of whom 2,200 soldiers were on our ship.

Some of the ship were loaded with trucks, railway cars, machinery, and all sorts of supplies. They steamed in two lines, the cruiser leading one line and our ship the other, while the destroyer brought up the rear.

We constantly changed course, zigzagging back and forth. One of the ships dropped behind on account of engine trouble. The fleet slowed down during the night and in the morning she overtook us with the little destroyer as guardian. In mid-ocean another ship dropped out, and we did not see her again. The fleet does not wait long for stragglers.

Life belts were constantly worn or carried, even to the dining room; boat drills were held twice a day, and the troops carefully instructed and practiced in emergency duties. The few civilians were scattered among the different boats.

It was recommended to leave the staterooms doors open so that they would not jam in case of explosion. These precautions made one constantly aware of threatened danger. The day before sighting land our cruiser escort left us and headed for home; soon after nine or ten little British destroyers hove in sight to guard us around the north of Ireland to Liverpool.

It was rough, nasty weather and one could not but admire the steadfast courage and endurance of the men on these little ships, patrolling back and forth, month after month, in cramped quarters, rolling and pitching, covered by water from the sea breaking over them. It is to them, who made the convoy system possible, that England and America owe a greater debt than we have fully appreciated.

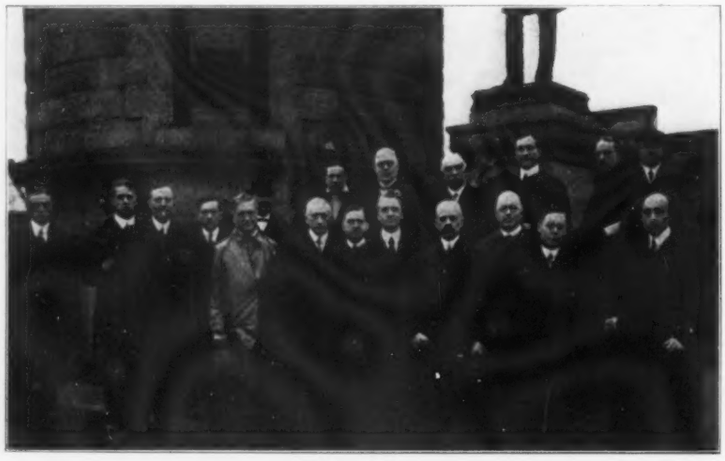
CONVOY SYSTEM WINS

I heard Admiral Sims say at one of the banquets given for us, that in the spring of 1917 before the convoy system was adopted and perfected England was losing the war! It would have been only a question of time when the submarines would have destroyed the merchant marine. England would have been starved out and America and Canada could not have sent their troops across. Things looked black indeed, much more so than the public knew. To Admiral Jellicoe, said he, belongs the credit of perfecting the convoy system for ocean transportation just as it had been successfully employed on smaller scale in the English Channel. The main idea is to use such a large number of destroyers, constantly circling about the fleet that the submarine has small chance of getting near enough to torpedo the convoyed vessels and no chance at all to use its guns effectively. Moreover, if successful in a torpedo attack the U-boat has no chance at all of getting away. This gradually wore down the German crews' morale and during the last months of the war the U-boats avoided convoys and confined their action to single and unprotected vessels.

RAILWAY TRAVEL IN ENGLAND

After a voyage of thirteen days we landed safely in Liverpool without seeing a U-boat. We were met on the ship by an English staff colonel and a Canadian major representing the British ministry. Every facility was extended for our convenient and speedy disembarkation. Special carriages were attached to the London train, which was held for us, and we were soon speeding on our way under the care of the conducting officer assigned to our party. Major Whitmore, "Our Major," as we soon came to call him, made our pathway pleasant and comfortable for eight weeks. Through England, Scotland and to France he was our shepherd. Reserved carriages in trains, taxis waiting at stations and hotels, the best accommodations in the best hotels which were turning away other guests, and the constant arrangements for examinations of passports, vises and orders were always attended to by the major so efficiently that we did not fully appreciate what hardships the ordinary civilian traveler looking out for himself would experience, until we had a few days by ourselves when the party split up for special side trips.

Ordinary travel in England now, as during the war, is difficult. Train service is much reduced and much slower. The few trains are very long and greatly crowded. There are usually many standing in the corridors and in compartments.



THE PARTY OF AMERICAN BUSINESS PUBLISHERS AND EDITORS WITH SEVERAL CITY OFFICIALS OF EDINBORO, TAKEN AT THE LINCOLN MONUMENT IN THAT CITY

Copyright by Committee on Public Information

ST. MIHIEL BATTLE FRONT

The restaurant service on the trains is excellent, even in war time better than in the United States. The food is good, well cooked and well served and reasonable in price. It was equally good in France. One must buy a ticket for a certain sitting in the restaurant car. Only enough tickets are issued to fill the car. If you are five minutes' late, you lose your place. If you have the last sitting you can remain for the rest of the journey in the restaurant car, which is similar to a regular first-class coach divided in compartments and very comfortable. Since my return I learn that this seating plan has been adopted in the United States.

Hotels are overcrowded. Many of the large hotels in London and other cities have been taken over by the Government so that fewer accommodations are available for a large number of travelers. There are thousands of officers and civilians traveling on Government business, which causes great congestion in hotels.

Prices are high, but the service is good as a rule.

In many hotels women are doing men's work, but we saw many men waiters and porters.

FOOD IN ENGLAND

Food is closely rationed but there is enough to be had. Everyone has a ration ticket entitling one to so much meat, sugar, butter, tea, etc. per week. We were each given a little parcel of sugar for our weekly allowance. This you treasured carefully for none could be obtained at the table.

Four full meat coupons were attached to a week's ticket. Some kinds of meat only required half a coupon. If you ran out of coupons you went without meat for the rest of the week. As we were entertained at luncheon and dinner almost every day we had no difficulty in getting plenty of meat. The scarcity of sugar, butter, milk and cream, as well as fats, is really a hardship, and England is getting very poor bacon from the United States, which is a source of some criticism. Fruit is also very scarce and frightfully expensive.

But there is no grumbling; every one takes the food restrictions cheerfully and makes a joke of it.

One is immediately impressed with the wonderful spirit shown.

DETERMINATION TO WIN

We met many American residents of London who told us it was impossible for people in America to realize the feeling of grim resolution and determination which seemed to possess every man, woman and child. Nothing was in anyone's heart or action but to win the war. Sacrifice was not considered as such; it was a matter of course. The English people forgot all their old traditions, habits and customs and when they realized the enormous task which confronted them they rose to the emergency in a wonderful manner and without saying much about it.

Although we saw England after the strain was relieved, the evidence was apparent. It was still fresh. It was difficult to go back in a day or a month to the state of mind or ways of peace.

They had lost the enthusiasm in the war that we had. It was an old story. War news was more or less stale. They were "fed up" on war. It was a matter of business—everyone's business, but they kept on seriously and grimly, never questioning the result and only asking that the Hun should be decisively beaten.

There was disappointment expressed on every hand, even in the midst of rejoicing at peace, that the armistice could not have been delayed two weeks longer and the knock-out blow delivered which would have annihilated the Germany army and permitted bombing of Berlin.

The drive from Euston Station in London to our hotel was through dark streets. Accustomed to bright illumination and strong headlights on automobiles, it seemed a perilous drive but long habit had made the drivers skilful.

There were a few gaslights at the street corners but these were painted on top or had black shields overhead.

No lights were seen in shops or houses. In the hotels the halls and corridors were dimly lighted and in the bedrooms the blinds were closed at sunset. Even although peace was near there was no relaxation of the rules.

Conservation of coal has been necessary and all buildings are cold. The hotels are not heated except perhaps the dining room and lounge. The bed rooms are entirely without heat, unless one gets permission for a small coal fire in a tiny grate.

Before we left at the end of December there was some improvement in the heating.

Strangely enough in France where coal is even more scarce than in England, the buildings are much better heated, but that was the case even in peace times.

Copyright by Committee on Public Information

FOREST OF ARGONNE. AMERICAN TROOPS ADVANCING AND MOPPING UP TRENCHES JUST TAKEN. THE DRIVE OF THE INFANTRY STARTED ABOUT HERE

On the day following our arrival occurred the Lord Mayor's Inaugural Parade called the "Lord Mayor's Show".

Excellent places had been reserved for us. This quaint ceremonial procession was of peculiar interest because every branch of the British forces, naval, military, air force, transport hospital, women's auxiliary, etc., was represented by separate units and there were also contingents from each of the Allied forces.

One got, as it were, a cross section of the Allied forces. It was gratifying to Americans to witness the splendid reception given to the boys from U. S. A., exceeding in heartiness the welcome to any other unit.

There is no doubt about the good feeling of the Britishers toward the United States now. The man in the street who did not understand the reason for our delay in coming into the war, felt surprised and greatly disappointed that we should not have joined hands with them earlier in the fight, but that feeling seems to have passed away and among all classes we found the greatest cordiality and friendship experienced for America and admiration for President Wilson.

MEETING PROMINENT MEN

During the following week we had the opportunity of meeting many prominent men at the various dinners and luncheons given for us.

We were welcomed formally at a luncheon given by the British Ministers of Information on Armistice Day.

The following day was a luncheon by the "English Speaking Union" and a dinner given by the Newspaper proprietors of the United Kingdom—both these being large affairs, attended by such men in the Government as Mr. Balfour, Lord Desborough, Sir Arthur Steele-Maitland, Lord Cecil and others. Our own Admiral Sims was several times a guest and speaker at functions which we attended.

Sir George Perley, Canadian High Commissioner gave a luncheon next day, and Lord Burnham owner of the Daily Telegraph, one of the great London papers, gave a large dinner at Claridge's attended by many prominent

(*Continued on page* 345)

Copyright by Committee on Public Information

ST. MIHIEL SALIENT. ARTILLERY AND TRANSPORT ADVANCING TO NEW POSITIONS

Multiple Representation in Industry

Development of a Labor Creed of Ten Principles of Partnership

By *John D. Rockefeller, Jr.*

THE war has taught many lessons; one of the most useful is the value of co-operation.

The successful outcome of the conflict was largely the result of the most complete cooperation. Irrespective of race, color or creed, men worked and fought and suffered and died, side by side. The kinship of humanity has come to be understood as never before. Common danger, common toil, common suffering have developed the spirit of brotherhood.

To-day we stand at the threshold of the period of reconstruction. As we address ourselves to the grave problems which confront us, problems both national and international, we may look for success in their solution just in so far as we continue to be animated by the spirit of co-operation and brotherhood. The hope of the future lies in the perpetuation of that spirit. Only as those who sit around the peace table are imbued with it, will their efforts result in an outcome at all commensurate with the price which has been paid for peace.

In international affairs America has seen clearly the fundamentals of reconstruction, and has sought to enhance human well-being by co-operation among nations and the establishment of conditions which make co-operation possible. It is to be hoped that upon the problems of national reconstruction she will bring to bear the same clearness of vision and the same high purpose. Among these problems none is more important than that of industry, none more pressing, since industry touches almost every department of life. It is this theme, or, more particularly, the one phase, "Representation in Industry," that I desire briefly to develop.

WHAT IS THE PURPOSE OF INDUSTRY?

Shall we cling to the conception of industry as an institution, primarily of private interest, which enables certain individuals to accumulate wealth, too often irrespective of the well-being, the health and the happiness of those engaged in its production?

Or shall we adopt the modern viewpoint and regard industry as being a form of social service, quite as much as a revenue-producing process?

Is it not true that any industry, to be permanently successful, must insure to labor adequately remunerative employment under proper working and living conditions, to capital a fair return upon the money invested, and to the community a useful service?

The soundest industrial policy is that which has constantly in mind the welfare of employes as well as the making of profits, and which, when human considerations demand it, subordinates profits to welfare. Industrial relations are essentially human relations.

It is therefore the duty of everyone entrusted with industrial leadership to do all in his power to improve the conditions under which men work and live.

The day has passed when the conception of industry as chiefly a revenue-producing process can be maintained. To cling to such a conception is only to arouse antagonisms and to court trouble.

In the light of the present, every thoughtful man must concede that the purpose of industry is quite as much the advancement of social well-being as the accumulation of wealth. It remains none the less true, however, that to be successful industry must not only serve the community and the workers adequately, but must also realize a just return on capital invested.

WHO ARE THE PARTIES TO INDUSTRY?

The parties to industry are four in number: they are Capital, Management, Labor and the Community.

Capital is represented by the stockholders and is usually regarded as embracing management.

Management is, however, an entirely separate and distinct party to industry—its function is essentially administrative; it comprises the executive officers, who bring to industry technical skill and managerial experience.

Labor consists of the employes.

Labor, like capital, is an investor in industry, but labor's contribution, unlike that of capital, is not detachable from the one who makes it, since it is in the nature of physical effort and is a part of the worker's strength and life.

Here the list usually ends. The fourth party, namely, the Community, whose interest is vital, and in the last analysis controlling, is too often ignored.

The community's right to representation in the control of industry and in the shaping of industrial policies is similar to that of the other parties. Were it not for the community's contribution, in maintaining law and order, in providing agencies of transportation and communication, in furnishing systems of money and credit and in rendering other services—all involving continuous outlays—the operation of capital, management and labor would be enormously hampered, if not rendered well nigh impossible.

The community, furthermore, is the consumer of the product of industry and the money which it pays for the product reimburses capital for its advances and ultimately provides the wages, salaries and profits that are distributed among the other parties.

RELATIONS BETWEEN THE FOUR PARTIES TO INDUSTRY

It is frequently maintained that the parties to industry must necessarily be hostile and antagonistic. I am convinced that the opposite is true: that they are not enemies but partners; and that they have a common interest.

Moreover, success cannot be brought about through the assumption by any one party of a position of dominance and arbitrary control; rather it is dependent upon the co-operation of all four. Partnership, not enmity, is the watchword.

LOSS OF THE PERSONAL RELATION

In the early days of industry, the functions of capital and management were not infrequently combined in the one individual, who was the employer. He in turn was in constant touch with his employes. Together they formed a vital part of the community. Personal relations were frequent and mutual confidence existed. When differences arose they were quickly adjusted.

As industry developed, aggregations of capital larger than a single individual could provide, were required. In answer to this demand, the corporation, with its many stockholders, was evolved. Countless workers took the place of the handful of employes of earlier days. Plants scattered all over the country superseded the single plant in a given community.

Obviously, this development rendered impossible the personal relations which had existed in industry, and lessened the spirit of common interest and understanding. Thus the door was opened to suspicion and distrust; enmity crept in; antagonisms developed. The parties to industry came to view each other as enemies instead of as friends and partners, and to think of their interests as antagonistic rather than common.

It is to be regretted that there are capitalists who regard labor as their legitimate prey, from whom they are justified in getting all they can for as little as may be. It is equally to be deplored that on the part of labor there is often a feeling that it is justified in wresting everything possible from capital. Where such attitudes have been assumed, a gulf has opened between capital and labor which has continually widened.

Thus the two forces have come to work against each other, each seeking solely to promote its own selfish ends. As a consequence have come, all too frequently, the strike, the lockout and other incidents of industrial warfare.

THE SENSE OF ISOLATION AND DETACHMENT

Then, too, as industry has become increasingly specialized, the workman of to-day, instead of following the product through from start to finish and being stimulated by the feeling that he is the sole creator of a useful article, as was more or less the case in early

(*Continued on page 233*)

The Human Problem in Industry

Relations of Employer and Employe Under New Regime

By *Harry Tipper, of "Automatic Industries," New York.*

THE Professor of nervous diseases in an Eastern medical college used to tell his college students to remember that when Mr. Jones or Mrs. Smith came to them with nervous prostration or indigestion they were not merely cases of nervous breakdown or indigestion, but they were concerned with Mr. Jones' trouble with his nerves or Mrs. Smith's difficulty with her stomach. In other words he counselled them to remember that they were not dealing with abstract cases, but with the concrete difficulties and pains of two individuals.

Perhaps it would be well in considering the subject of labor and the organization adjustments which are necessary in order to offer some hope of a solution of the problem, to have in mind that we are not dealing with an abstract subject, but with the concrete difficulties, ambitions and aspirations of Tom, Dick and Harry. For after all labor is not a commodity capable of being estimated with the finality which can be secured in estimating a product, but it is a service of the individual human being, which requires for its fulfillment the very life of the laborer and is intimately connected with his individual ambitions, aspirations, his family and social surroundings, his community and national traditions and his subconscious and numerous, racial heritages.

Unless the matter is approached in this way there can be little purpose in pursuing the argument, for the discussion of its abstract conditions will not touch the individual requirement of the manufacturer any more than it will reach into the individual necessities of the worker, and it will leave us without conviction or any idea of its application.

It is not only true that the question of labor is bound up with the human instincts of the laborer, but it is influenced just as clearly by the ideas, prejudices, individual ambitions, traditions and racial heritages of the employer. It is in fact, a human nature problem not to be solved by the discussion of the economic conditions alone nor the fancied rights or privileges of any group of individuals whatever their vehemence.

The international rearrangement which we are presently about to undertake in combination with the Allied countries, will not be based upon any new discoveries in the humanities. It must come out of a keener understanding of past conditions, of past injustices and of the historical lessons which have been opened to us by the more careful reading of what has gone before. It will be based upon

(*Continued on page 242*)

"I believe that the most effective structure of representation is that which is built from the bottom up, which includes all employes, and, starting with the election of representatives in each industrial plant, the formation of joint works' committees, or joint district councils, and annual joint conferences of all the parties in interest in a single industrial corporation, can be extended to include all plants in the same industry, all industries in a community, in a nation, and in the various nations.

"I believe that the application of right principles never fails to effect right relations; that the letter killeth and the spirit maketh alive; that forms are wholly secondary, while attitude and spirit are all important, and that only as the parties in industry are animated by the spirit of fair play, justice to all and brotherhood, will any plans which they may mutually work out succeed."—John D. Rockefeller, Jr.

Industrial Relations After the War

Need of Constructive Plan Acceptable to All —Basic Principles That Should Control

By *Henry P. Kendall, Treasurer Slatersville (R. I.) Finishing Co., and Former Member Industrial Relations Committee of U. S. Chamber of Commerce*

BEFORE we entered the war the big problem before the American people was that of developing sound industrial relations. Prior to the war there had been a large growth of trade unions, and generally the relations between employer and employe were the usual contractual relations. They were collective when dealing with organized labor. When the war came on us the readjustment was so tremendous that the balance of economic power, by which, hitherto, the contractual relations between employer and employe had been regulated, was upset.

The demand for great production meant greater migration of labor and concentration in certain localities to a degree hitherto unknown. The failure of the Government to formulate any definite policy or plan either for production or labor control, resulted in unregulated competition between departments of the Government, the Government and private industry, and between industries. Such lack of control resulted in increased unrest, until cessation of work due to strikes forced the Government to step in and take a hand lest we fail to do our part and lose the war.

LABOR DEPARTMENT HAS FALLEN DOWN

Business men have been disappointed in the failure to have a strong labor administration. There have been wise men added to the Department of Labor and there has been a good deal accomplished. Unquestionably the Government had to take a hand, but unfortunately the Labor Department, not an example of strong, effective organization prior to the war, has not been able to meet the situation.

Now, vitally interested as we are in this problem, what lesson are we to draw? Is it not that we, as business men responsible for industrial management, must analyze the situation, and determine on some definite plan that will be constructive and so broad that all parties interested, the Government, the employed and the public may accept it?

THE STATUS QUO ANTE

I conceive of four possible courses open to us: *First*—A certain group in the country believe in the status quo ante, that if we do nothing, close our eyes to the influences of the war, we will drift back to the identical pre-war status. I do not believe that men who look below the surface of things and see the strong social, political and economic currents which have set in, can really believe that we shall ever live in the same world that we lived in before the war.

SOME WOULD TEST ECONOMIC STRENGTH

What is the second course that suggests itself to the minds of some? It is that, since labor, backed by the Government, under the exigencies and necessities of war production, has had its own way; now the time is approaching when business men will organize by industries, by communities, or nation wide, and throw down the gauntlet to labor, demand a test of economic strength, with the belief that they will have their innings, and that with two men for every job they will reduce wages, lengthen hours and impose the other conditions they want. Such extreme utterances have already been given to that effect and have been repeated by labor leaders, who say, in substance:

"That is the attitude of the business men of the country; it is just what we have told you; get ready now for the fight of your lives. Do not give up what you have won, whether it is right or not, but hold on to it because business is organizing against you."

If this second course truly represents the point of view of the far-seeing business men throughout the country, then I have misinterpreted it.

COMPULSORY ARBITRATION

What is the third course open to us?

It is that something like the industrial courts of Australia shall be established throughout the country under the Federal Government who shall adjudicate all disputes, in substance, compulsory arbitration; that there shall be built up on these decisions an industrial common law which will determine, as time goes on, a national policy of industrial relations.

But compulsory arbitration, in view of the experiences which industrial managers and employes, too, have had, does not seem to meet with favor in the United States by either side. Too often, most often, in fact, arbitration is merely a compromise. It may be fair and it may not. It is not likely to be constructive; it comes only after there is a dispute, and if again I correctly interpret the sentiment of employers and employes throughout the country, it is not the thing the United States is seeking now.

THE WAGE BOARD PLAN

A fourth course has been attempted somewhat feebly, and too late to be effective during the war. This is the theory that industries, management and employes should get together and set up wage boards in their industries. These wage boards should be composed of equal representatives of employers and employed, and might represent either a single plant, a group of plants under a single management, or an entire industry. Such boards might have a neutral chairman. They would, of course, be made up on the one hand of men familiar with the industry, both with the business and the craft. Such boards should determine, in advance, standards for hours, wages, conditions of employment, etc., should provide the necessary judicial machinery for interpreting the standards and rules; should, in short, constitutionalize industrial relations.

The War Labor Policies Board (not the Taft-Walsh Board) comprehended the importance of this plan, which had already, for some years, been successfully operating in a few plants. It made the attempt to extend its application to some of the major industries. It was too late, however, to make much progress, and having failed at the start to win the confidence of business by decisive action, it could do little but suggest.

FEDERAL LABOR EXCHANGES

The one other act of the War Labor Policies Board, which also was too late to be effective, and badly handicapped as well by local and national political influence, was the establishment of Federal labor exchanges for unskilled labor. I believe that movement is sound in principle and as much needed in the distribution of labor as is the Federal reserve system in the field of finance. But if Federal labor exchanges are to serve their purpose they must have the confidence of both employer and employe alike. They must be differently controlled, the control being decentralized, and by representation of business, of the public and of labor, serve faithfully, impartially and effectively the needs of the various communities. That has been done in a few instances, but not in many. In this great country, with seasonal changes from the south to the north and from the east to the west, with the crops, with industrial fluctuations, such a system is fundamental for the lessening of inefficient migration, unnecessary unemployment and industrial unrest. It should be completely reorganized, extended to the skilled trades, and secure the confidence of industry, without which it will not be used and cannot succeed.

Now then, with the two really constructive plans, the wage boards and the extension of federal labor exchanges, which the War Labor Policies Board tried to extend, what shall the business men do? The fundamental question, it seems to me, is this: the employes of the country, who have spokesmen, have a definite plan; they know what they want; they are always heard; they are in the councils of the Government, particularly the present Government; they speak with no difference of fundamental opinion. There has up to the present time been no national leadership in business or in this field of industrial relations.

We have stated that the coming of peace does not lessen the gravity of the industrial relations problem. It rather, in the light of Russia and Germany, gives it a new and acute phase; it makes it, on the whole, the greatest problem facing the American people today. Under the circumstances, the public may properly feel that the Government's representation of its interests in this problem of satisfactory agreements should be continued up to the moment when a return to the pre-war policy of unrestricted agreements appears no longer dangerous to the prosperity and peace of the country. If, therefore, employers and employes wish a greater

(*Continued on page 247*)

Wages in War and Peace

Cannot Maintain Present Wages Nor Prosper with Universal Eight-Hour Day

By *Henry Harrison Lewis, Editor "Industry," Washington, D. C.*

MANY great questions confront the country in this period of readjustment following the great war. Although we entered the war on April 6, 1917, and our participation lasted just a little more than nineteen months, we must take into consideration the fact that the disturbance in industry and in all the fundamental relationships which exist in peace times began in 1914. The disorganization of Europe had its reflection here, creating artificial conditions and influencing our financial, economic and industrial life. It is true that we did not begin actual preparation until about the date of our declaration of war against Germany, but there had been a growth of special industries because of the European demand, and there had been changes from our usual productive character long before April 6, 1917.

With our entrance into the war, there was a wholesale change in industry, in finance, in methods of living and, in fact, in our whole economic and political structure. The changes in political and social life were marked, limitations were placed on the privileges of the individual, new legislation was enacted which would have been considered unconstitutional, or illegal, except for war's necessities, and reorganization was accomplished all along the line. For nineteen months this exaggerated condition prevailed, supplementing the minor changes of the preceding period.

INDUSTRIAL READJUSTMENT CALLS FOR PATRIOTIC CO-OPERATION

It is very apparent, even without careful study, that, now that peace has arrived, we cannot continue under conditions made necessary by war and we must return, if not exactly to a pre-war basis, to a peace basis. The exaggerated conditions of war are eliminated automatically by peace, and there must be readjustment, reconstruction and reorganization. This can be brought about only through that co-operative spirit which made for our success in war. There is this difficulty, however, that the co-operative spirit of war was fortified by the spirit of patriotism, by subordination and by determination to carry out a specific job well. The co-operative spirit of peace should be based equally on patriotism because its purpose is the prosperity of the country, but there is lacking, of course, that compulsion, that definiteness and that intense concentration which the war produced.

The greatest problem is in the readjustment of industry which will naturally affect the financial markets and the prosperity of the country. The end of the war means an end to a large line of extraordinary exports which were a part of it, and it also means the beginning of competition in foreign fields where for a period of more than four years we had almost unlimited sway. It means competition also in our home markets and it brings squarely home to the people the excessively high cost of living as well as the penalizing of industry and initiative by taxation. The problem of industry is that of production costs, and this must be regulated through the liquidation of labor and the adjustment of hours of labor in such a way that there will be sufficient production and the cost will not be too great.

FAIR PAY FOR FAIR WORK

The wages paid during the war were compelled by the necessities of the situ-

(*Continued on page 249*)

Government to Assist Employers of Labor

Organizing to Help Solve Problems of Labor and Industrial Relations

By *Grant Hamilton, Director General of the Working Conditions Service of the U. S. Dept. of Labor, Washington, D. C.*

EMPLOYERS of labor have known the Government as a policeman, a prosecutor, an inspector, investigator or a judge. Now, the Government is to be introduced to them in a new capacity, as a counselor, a consulting expert, who gives advice and assistance in solving the problems of administering the labor forces in industry. In place of the investigator who looked for evidence with which to convict the employer, a technical expert will be sent to help the employer remove the evils against which laws are directed. Instead of punishment the Government offers education. Compulsion is to give way to leadership.

The Department of Labor has established the Working Conditions Service as the federal agency to study and improve working conditions. The field includes scientific research and the development of standards, together with placing this information at the service of employers and employes and assisting them in making practical use of it.

The Working Conditions Service of the Department of Labor is now prepared to look after health and sanitation in industry and, through its Division of Industrial Hygiene and Medicine, is developing standards of industrial sanitation and medical practice and will undertake advisory supervision of medical departments in industrial establishments.

The direct relationship between the health of industrial workers and factory output is now realized. In order that lost time and inefficiency caused by impaired health may be cut to a minimum the Division of Industrial Hygiene and Medicine, with personnel detailed by the U. S. Public Health Service, has been created to investigate hygienic conditions in industry and to assist in bringing about improvements. This work is carried on at the request of non-governmental organizations as well as governmental agencies. Employers can benefit from co-operation with the division.

ASSISTANCE IN HYGIENIC DEPARTMENTS

This division has been directing the hygienic and medical services in certain Government war industries and is prepared to advise managers of privately owned plants, when requested, upon the installation and operation of hygienic and medical departments. Prior to the organization of the division an extensive study of industrial dispensary practice methods was made by Dr. C. D. Selby, Consulting Hygienist in the U. S. Public Health Service, and from this study standards have been formulated for application in medical departments of all industrial plants.

For the assistance of managers wishing to secure medical personnel a register of physicians, sanitarians and nurses available for industrial service is kept by the division. In addition to this registration universities throughout the country are being asked to offer courses in industrial hygiene and medicine open to physicians, sanitarians and nurses desiring to become qualified for industrial work. Courses of this nature have been inaugurated at Yale University, the University of Pennsylvania and the University of Cincinnati.

VOCATIONAL PLACEMENT OF WORKERS

Another activity of the division of primal importance, especially during the present reconstruction period, is along the line of vocational placement of workers. The Section of Plant Hygiene, under Dr. Selby, is working out a program for reconstruction and replacement which will be of especial interest to employers who are being faced with the enormous problem of rehabilitation.

The Research Section is also carrying on a service of major concern to employers. Besides looking into general hygienic and sanitary conditions in industry this Section is making exhaustive studies of specific occupational diseases and poisonings with a view to ascertaining their cause and the most effective means of prevention. Although this investigational work has been confined principally to plants being operated by the Government its usefulness is not limited and industry as a whole is expected to profit by this governmental aid. Bernard J. Newman, now chief of the Research Section, was formerly director of the Pennsylvania School of Social Service and since the outbreak of the war has held the distinction of being the only expert in sanitation in the Ordnance Department.

Passed Assistant Surgeon A. J. Lanza, executive officer of the division, is a man of broad industrial experience having served the Public Health Service in various industrial capacities including the directorship of its Field Investigations of Industrial Sanitation. Dr. Lanza, together with a large corps of industrially trained men, is in a position to serve industry.

The Division of Labor Administration makes studies of hiring, selecting, managing and dismissing employes, and assisting industrial managers in handling all such problems of labor administration.

PROBLEM OF TURNOVER

Wherever there is a large labor turnover, wherever the labor force is rotating so that several new forces are hired every year, employers in every line of business are now seeking new methods. Every employer must know exactly how great the turnover is in his plant; what it costs a year to hire and break in new labor; whether the turnover is greater or smaller than in other plants in similar lines of business; what are the real causes of dissatisfaction among the employes that make them quit and float around from plant to plant; whether the average employe stays a week, a month, a year, five years, ten years or more.

Every employer ought to have accurate figures for answering these questions in order to handle his labor intelligently. How this may be done, what records to keep, what reports to get, and how to tabulate the figures so that his exact labor problem will be revealed to each employer, these are some of the things that the employment experts of the Division of Labor Administration are ready to show the employer on request.

Then there are the problems of absenteeism and tardiness. Employes may absent themselves from work frequently, and keep machines idle. They may habitually come late to work. These problems too have been studied and the reasons discovered and remedies applied. And the Government is ready to help any employer to study the same problems in his own plant and make suggestions for dealing with them in a scientific and businesslike way.

SELECTION OF LABOR

Inefficiency of working people is often due to the fact that they have been carelessly assigned by a busy foreman or manager to work for which they are not fitted. The selection of labor for a business, the choosing of human beings with their infinite variations of character, quality, intelligence and prejudice would seem to be at least as important as the buying of ordinary materials. Nevertheless, most business men will have a highly paid expert buyer for materials and leave the securing of labor to a foreman or a time clerk to handle as a side issue. Many employers, however, have engaged trained personnel managers to recruit, build up and maintain their labor forces, and it is the experience of such men as these that the Government is now ready to make available to every employer.

This is done by the Division of Labor Administration in three ways:

(1.) Circulars on various phases of employment management are issued weekly in which the experiences of employers in dealing with their labor problems are passed on to all industries. If you are not receiving these circulars write to the Working Conditions Service to have your name placed on the mailing list.

(2.) Special studies are made of the employment problems in any plant if the employer requests it, and a confidential report is submitted to the employer wtih recommendations outlining the system and methods that need to be adopted to handle those problems. If the employer desires it the experts in the service will also supervise the installation of the employment system that is recommended.

(3.) A specialized reference library on employment management is maintained by the Division of Labor Administration where all available information on this subject is collected, classified, analyzed and made available in practical form for the use of employers, employment managers and others who may be interested.

If an employer in the textile industry, for example, wishes to find out what others are doing in the way of selecting, placing and managing their help he does not have to begin an extended investigation of his own. He can get the results of investigations already made by simply writing to the Division of Labor Administration. If he wishes to go farther than that and make a thorough study of his own employment problems he can get expert employment managers from the Division of Labor Administration to advise him and assist him in making the investigation; and these men will help him also in putting into practical working order any new methods of handling labor that such an investigation may show to be necessary or desirable. The chief of this division is Dr. William L. Leiserson, previously associated with Toledo University, and well known in connection with his work for Americanization in industry and as a student of labor problems.

SAFETY ENGINEERING AND INDUSTRY

Because of the interrelation in industry of the problems affecting the efficiency and welfare of the worker as a producer, the Working Conditions Service recognizes that its program should be as all inclusive as are the problems themselves. Hence, it has created a third division and charged it with responsibility for those phases of the general program which have to do with safety engineering as a scientific, and not an inspectional, service to industry. H. H. Cannon, chief of this division, was Superintendent of Safety for the International Shipbuilding Corporation, at Hog Island, Pa., where he reduced accident percentages far below those prevailing in similar yards.

The comprehensiveness of the work contemplated by this division is an outgrowth of an analysis of the origin of plant hazards. The safety engineer today recognizes three primary sources of industrial accidents. First, there is the generally accepted machine hazard either inherent in the machine or induced by environmental conditions, such as congestion or bad lighting or other like causes. Then there is the hazard arising from either the ignorance or the indifference of the employe to the dangers of his employment. The third source is one less usually referred to but of fundamental importance, and is inherent in the site chosen for the factory and in the type and incompleteness of the building housing the processes.

Recognizing this diversity of origin of industrial hazards, the program based upon such readily unfolds itself. It must necessarily involve features in some instances applicable to all plants, some pertinent to only a few, as well as some that must be made effective even before the plant has taken form or the land for it selected and surveyed.

PHASES OF INDUSTRIAL HAZARD PROGRAM

Briefly stated, four sub-divisions of work have been determined upon: (a) Research, (b) Invention, (c) Organization, and (d) Education.

The research phases will include studies into the hazards of industry and the segregation of all hazards inherent in the machine or process from those produced by other causes. Some of this work will be done under the direct supervision of the division though by far the larger part will be done through co-operation with well established safety organizations in large industries where the principle of safety is thoroughly established and the effort to effect it constantly made. The inventive phases will also be partly by direct action of the engineering division, and of the personnel of allied divisions in the service where highly specialized engineers are attached, and partly by a further co-operative arrangement with a variety of industries. Wherever specific hazards of a similar character have been uncovered and any one plant has produced an effective safety device to eliminate or to reduce one such hazard, its adaptation to other plants will be encouraged and necessary changes required will be suggested.

The largest part of the program of the division will be of an organizing and educational character. The point at which most safety programs fail is in a poorly worked out organization scheme. Because a plan has worked well in one shop, it does not follow that the same plan will work equally well in another shop. Each plant is a problem in itself due to the temperament of the management, the nationality of the employes, the skill of the service rendered, or to other causes of like character. The Safety Engineer will help to formulate plans adaptable to different industries and to various skilled and unskilled trades as well as to diversified nationalities in different stages of Americanization. He will do more than this, however. When requested he will endeavor to obtain the right personnel for an establishment meeting with particularly difficult problems, and he will assist such personnel to establish the necessary program. This will mean the standardization of record cards, filing systems, charts, and similar matter that will give an accurate analysis of the success or weakness of the safety organization and of its plans.

It is in the educational work that the greatest promise lies. All safety education, effectively maintained, reaches to the intelligence of the worker and of the management, and by establishing the reason for the program proposed or installed secures sane co-operation. With this in view, the division will seek to co-ordinate the work of the organizations now in the field, giving unity to their combined programs and reducing such features as may overlap, thereby causing the weakness of the movement in general.

By this comprehensive program the Working Conditions Service offers employers and employes help in solving fundamental problems which constitute the heart of industrial organization. The establishment of proper working conditions is essential to efficiency in production as well as to national welfare.

The Eight-Hour Day Defined

Straight 8-Hour Day a Matter of Social Policy —Basic 8-Hour Day a Measure of Wages

Compiled by the National Industrial Conference Board

DISCUSSION of the 8-hour day is characterized by much vagueness and confusion because of the different senses in which the term is used. The phrase has no clearly defined or universally accepted significance. It has at least three separate meanings:

1. A straight 8-hour day under which overtime is eliminated or even prohibited, except in extraordinary emergency.

2. An 8-hour shift with three work periods daily of 8 hours each for as many different sets of workers. This arrangement may extend over six or seven days of the week.

3. A basis 8-hour day in which 8 hours is made the basis or measure for service or payment, but under which overtime is permitted.

These definitions reveal the distinctions which exist between the different meanings of the so-called 8-hour day. When the straight 8-hour day is meant, overtime is prohibited and the work-week contains 48 hours or, if a Saturday half holiday is observed, only 44 hours. Under the 8-hour shift system, overtime is practically eliminated by the nature of the arrangement; if the industry operates continuously seven days in the week, the work-week totals 56 hours. In the case of the basic 8-hour day, the *nominal* work-week may consist of 48 or 44 hours, dependent upon the observance or non-observance of the Saturday half holiday, but since overtime is permitted, no limit is imposed on the number of *actual* hours per week.

In discussing these distinctions it should be recognized at the outset that a "straight" 8-hour day with overtime prohibited differs from a "basic" 8-hour day with overtime permitted, not only in the number of work-hours but also in principle. This applies equally to consideration of the straight 48-hour week and the basic 48-hour week.

This monograph is intended to clarify discussion of the 8-hour day. It is devoted to comparison and analysis of the different senses in which the term is used, and of the principles on which the demands for each type of a so-called 8-hour day are based. In particular, it aims to bring out the distinction between the "straight" 8-hour day as predicated on considerations of health or public policy, and the "basic" 8-hour day, which is largely a problem in wage adjustment.

In presenting this analysis, there is no intention of expressing an opinion as to what constitutes the proper length of workday. This is a matter on which the National Industrial Conference Board is assembling evidence by major industries, and for some of which it has already issued findings covering the cotton, woolen and boot and shoe industries.

THE STRAIGHT EIGHT-HOUR DAY

The 8-hour day in its rigid sense with prohibition of overtime is founded on the theory that such limitation of work-hours is demanded on grounds of health and social advantage. The contention is also often made that the straight 8-hour day is more productive than a longer workday. With these underlying premises for limitation of hours of work, overtime is inconsistent. Clearly, if the health of the worker or his social rights demand that he shall work not more than 8 hours per day, permission of overtime labor, except in extraordinary emergency, is illogical. If the straight 8-hour day is really more productive than a longer workday, overtime is absurd.

The social grounds on which the 8-hour day is advocated do not permit of precise measurement. The factor of leisure is clearly not adapted to statistical evaluation. In regard to the health and well-being of workers, except for industries subject to peculiar health hazards or unusual physical or mental strain, only vague generalizations are available. The contention that a straight 8-hour day increases output lends itself better to the test of definite measurement, but clear distinction must be made between hourly output and total weekly output. In occupations where hours were previously unduly long, reduction has at times been followed by an increase in hourly output. But such an increase frequently does not mean an increase or even maintenance of total weekly output. Obviously, the economic result of the straight 8-hour day must be ascertained by measuring the total production achieved.

The straight 8-hour day has been brought about chiefly by legislation. It was first applied to women and children; later it was extended to men in certain hazardous occupations. Still later it was made applicable to employes on public works or contracts for the State, and last to certain private enterprises. At the present time an 8-hour day is established by law in many of the states to govern the hours of labor of men and women in public employment, or in private employment on contract work for national, state, or municipal governments. Fourteen states enforce the 8-hour day for miners, 8 states enforce it for men employed in smelting operations. Eleven states apply it to men in certain other private employments, most of which involve special hazards.

Federal legislation providing for an 8-hour day in certain Government contract work existed prior to 1892, but the provisions were vaguely worded and their practical application was uncertain. By an Act of Aug. 1, 1892, however, Congress definitely adopted the principle of a straight 8-hour day for laborers and mechanics employed by the Government or contractors or sub-contractors upon public works. The hours of work in such cases were definitely limited to eight in any calendar day, except in case of extraordinary emergency. A later act of June 19, 1912, commonly referred to as the Federal Eight-Hour Act, provided for the insertion in certain classes of government contracts of a more specific condition. No laborer or mechanic was to be required or permitted to work upon the subject-matter of such contracts more than eight hours in any calendar day. A penalty of $6 a day for each mechanic or laborer illegally employed in excess of such hours was imposed. The 8-hour day enforced by this Act was a straight 8-hour day.

THE EIGHT-HOUR SHIFT

The 8-hour shift system is in accord with the motive of the straight 8-hour day. Essentially, however, it is an arrangement for securing greater efficiency in production. It is quantitatively determined by the fact that since the calendar day consists of 24 hours, the only practicable choice in a continuous industry lies between two shifts of 12 hours each or three shifts of 8 hours each. In many occupations requiring continuous activity or high nervous tension, the 12-hour shift has proved excessive; hence the system of three shifts of 8 hours each has been adopted as the only alternative.

This system does not involve any organized overtime. While its adoption may be based in part on the same grounds as are urged for the straight 8-hour day, it is a product of industrial organization and not of legislative enactment. Its effect upon output is radically different from that of the straight 8-hour day, while as a wage measure it differs from the basic 8-hour day. As against either of these arrangements, the 8-hour shift system obviously increases total production, while it lessens production cost by offsetting the burden of idle machinery and other overhead expense.

The basic 8-hour day, on the other hand, is essentially a wage issue. Eight hours of work are taken as a convenient standard by which to measure service, any hours in excess of these in a calendar day being paid for as overtime, usually at higher rates, but sometimes on a pro-rata basis.

That the basic 8-hour day is primarily a matter of wages is clearly recognized in the Adamson law, which provides that:

"Eight hours shall, in contracts for labor and service, be deemed a day's work and the measure or standard of a day's work for the *purpose of reckoning the compensation for services*, of all employes."

The phrase "for the purpose of reckoning compensation for services" obviously means that this legislation relates to wages, while the fact that overtime is permitted under it removes the Act from the category of legislation primarily designed to protect the health or social welfare of workers. Its effect was similar to its intent. The railroads, faced with the alternative of changing their methods or paying for overtime, found the latter policy the cheaper, especially in their freight service. That this legislation is recognized as a matter of wages, is shown by the report of the Eight-Hour Day Commission, appointed in pursuance of the Adamson law to report upon the operation of that statute, which states:

"The same payment is now made for a minimum day of eight hours as was formerly made for a minimum day of ten hours. . . . The increase in pay which the observance of the law brings to the employe is chiefly in the form of payment for more hours of overtime at an increased rate per hour."

The practical effect of this legislation was to make overtime operative at the end of an 8-hour period without shortening the actual hours of work. The wage previously paid for 10 hours of daily service is now paid for 8 hours, which means, of course, an increase in the hourly rate. This increased hourly rate, however, applies alike to regular and to overtime work; overtime is not penalized by extra rates.

Even clearer evidence that the basic 8-hour day is essentially a wages matter is found in the operation of the Federal Eight-Hour Act, as modified to meet war-time exigencies. As already shown, the Federal Eight-Hour Act of 1912 provided for a straight 8-hour day under which overtime was prohibited. But the war altered the situation. Because of the enormous demands on production the Government deemed it imperative in many instances to increase hours of work. Such an emergency was clearly contemplated by the Act itself, which contained a provision that

"The President, by executive order, may waive the provisions and stipulations in this Act as to any specific contract or contracts during time of war or at a time when war is imminent, and until January 1, 1915, as to any contract or contracts entered into in connection with the construction of the Isthmian Canal."

As originally framed, this provision simply contemplated the abandonment of the 8-hour limitation. The Naval Appropriation Act of March 4, 1917, however, introduced a new condition defining the circumstances under which such suspension could be made. It provides:

"That in case of national emergency the President is authorized to suspend

(*Continued on page* 195)

Textile War Work of the Bureau of Standards

Relation of Department to Problems Developed by the Struggle

By *E. Dean Walen, Chief of Textiles Department*

THE entrance of this Government into the war found us with many difficulties, among which was the textile situation. The specifications covering textile materials were drawn up during times of peace when raw materials were abundant. Early delivery was comparatively unimportant and the demands small. In many cases our military equipment was not limited to articles manufactured in this country nor to raw materials produced in this country, and it was economical and convenient to rely upon the importation of these articles. Suddenly all of these conditions were practically reversed. It became necessary to manufacture large quantities of fabrics from a totally inadequate manufacturing equipment and supply of specified raw materials. In many cases it was necessary to find substitutes for specified raw materials, and to utilize quickly and satisfactorily available raw materials and manufacturing equipment. Under such circumstances, where many agencies were involved, the various phases of the solution of these problems are somewhat difficult to correlate and discuss comprehensively. This paper treats of the relation of the Bureau of Standards to these textile war problems.

Before the work of the bureau can be discussed, it is necessary to emphasize the great value of the complete cooperation which the manufacturers gave to this and the other departments of the Government, for without this nothing could have been accomplished, and with it everything was effected. To be sure there were mistakes and unfortunate circumstances, but when one considers the immensity of the problems and the successes attained these conditions revert to trivialities.

AIRPLANE FABRICS

The war had not progressed very far on the other side, when it was definitely known that the airplane was very nearly the most essential machine of warfare. The wings of an airplane were covered with linen fabric and subsequently treated with a solution of cellulose acetate or nitrate which had previously been mixed with suitable plasticisers. The result was a wing covering which was smooth, impervious to the passage of air, and had a drum-like tautness. Previous experiments in this country and abroad had led to the conclusion that it was impossible to find a substitute for the linen fabrics, and that the conventional linen fabrics were absolutely satisfactory. The condition of the flax-growing countries very soon convinced many that it would become necessary to find a substitute for the linen airplane wings. The National Advisory Committee for Aeronautics of this country realized the necessity of producing all of the articles of military equipment from raw materials contained within the confines of the United States and requested that the Bureau of Standards conduct experiments to determine the feasibility of using some material other than linen for airplane wing coverings. Inasmuch as cotton is our most abundant domestic fiber, primary consideration was given to the adaptation of cotton fabrics to airplane wing coverings.

WHY FLAX AND WOOL WERE NOT CONSIDERED

The agricultural specialists of this country inform us that it is possible to grow flax and other long vegetable fibers which could be used in the manufacture of airplane wing coverings, but the long fiber industry is in its infancy and time was not available to solve the problem along these lines. There are fairly large quantities of wool grown in this country, but the supply would hardly meet the demands for military clothing, and the fiber characteristics are inherently wrong for wing coverings. The particular undesirable characteristics are its low strength per unit of weight, its radical change of performance when moist, the impracticability of spinning the fiber into yarns to make close fabrics of the proper weight, and the yield point which occurs at a comparatively low load.

France and Italy have successfully used silk, but this fiber must be imported and it is therefore more desirable to develop the cotton rather than the silk fabrics. Several objections may be raised in regard to the silk fabrics which do not apply to the cotton fabrics. It has been observed that the silk fibers become weakened in places, due probably to some kind of bacteria which cause the fiber to rot. This may be overcome by chemical treatment, which complicates the manufacture of dope and the operation of doping. The silk fiber, like all of the animal fibers, has a characteristic yield point at a comparatively low load, with the result that the wing covering would become loose after the plane has been subjected to conditions of abnormal flight. The factor of safety of the fabrics is very high, and this feature of silk will not become objectionable unless the unit pressures of flight are caused to be much higher than are met with in present practice.

The action of moisture on the silk wing covering is to cause it to become very loose. This same characteristic is present in practically all of the textile fibers, but is more marked in the case of the animal fibers than in the vegetable fibers. This objection is not insurmountable and may be corrected by the application of proper chemicals.

It has often been observed that the tautness of a silk fabric of equal weight is much greater than that of the other fabrics. This is due to the fact that the volume of silk for any given weight is less than the other common fibers, and as a result the fabrics may be made with less crimp, which exaggerated the tautness of the covering. This characteristic has the effect of making a thinner fabric for any given weight. Because of this the "ping" or percussion test for tautness gives a sound of higher pitch and causes one to overestimate the tautness. Because of the difference in density of silk, the tear resistance when doped is much less than that of the other fabrics for any given structure.

Spun silk, which has had its elastic limit exceeded by shredding it from the cocoon, very largely overcomes many of the difficulties discussed above, for its density when made up into a fabric approaches that of the other fibers. The possibilities of using silk are very good, but until silk is a commercial fiber of this country it is best to use cotton, which has proven to be satisfactory in every respect.

WEST LABORATORY, CONTAINING TEXTILE DEPT., BUREAU OF STANDARDS

TRIED TO DUPLICATE LINEN IN COTTON

As early as January, 1916, the Bureau began the study of airplane fabrics. The study was confined to the stresses involved in flight and the characteristics of the satisfactory linen. The physiological effect of changing from linen to cotton was so great that it was thought advisable to construct a cotton fabric having the desired properties of the linen fabric. The many previous attempts to substitute cotton were based on the duplication of structure of the linen fabric, and inasmuch as the linen fibers are inherently different from the cotton fibers, it was logical to expect that the resultant fabrics would not behave like linen, although they might look like the linen fabrics. The fabrics constructed to duplicate structure had low strength per unit of weight, low tear resistance, little tautness upon the application of dope, and did not retain what little shrinkage they did have.

FIRST SUCCESSFUL COTTON FABRIC

The first successful cotton fabric was constructed at the Ponemah Mills, Taftville, Conn., by F. B. Ricketson, and in the early part of May, 1917, the fabric had been completely tested in our laboratories. There were several fabrics in this group which had quite different properties, and these were placed on planes at Langley Field and at Pensacola during August, 1917. The best fabric of the group was constructed of mercerized 3/80s yarn, 70 square, and was the basis of what is known as the U. S. Grade B cotton airplane fabric. Figure (1) is a photograph of the first panel, covered with Grade B fabric which proved to be quite satisfactory, and the one which was pronounced more satisfactory than the cotton fabrics used by the Italians. It was not known until after this panel was covered that the Italians had used cotton with a good degree of success. The results of the tests on this and other panels demonstrated that service results might be reliably predicted in the laboratory. From these tests, and in co-operation with R. L. Kingston, then with the Curtis Aeroplane Co., and A. R. Pierce, of the Pierce Manufacturing Co., New Bedford, Mass., the present Grade A airplane fabric was evolved. The manufacturers were becoming uneasy, for it had been demonstrated that cotton was possible and the military authorities were not showing much interest.

THE COTTON FABRICS ADOPTED

It was not until Aug. 24, 1917, that the military authorities were becoming concerned with the probable shortage of linen, and on that day a conference between the military authorities and the Bureau of Standards resulted in the adoption of Grade A and Grade B fabrics. Since that time very large quantities of the fabrics have been purchased and used, and it has been quite conclusively demonstrated that the Grade A is somewhat superior to the Grade B fabric, although either one may be used. The grade B fabric is somewhat too open in structure, which allows the dope to penetrate excessively, which in turn lowers the tear resistance and increases the weight. The penetration is such that the dope drips through onto the under fabric, making a very brittle spot. This condition may be remedied by the application of a different dope, but the raw materials situation in the manufacture of dopes apparently prohibited the making of such a dope.

COMPARISON OF LINEN AND COTTON FABRICS

Since the time of the adoption of the Grade A and B fabrics many attempts have been made to produce fabrics which were more satisfactory, but in every case the differences have been so slight that changing over would not warrant their adoption. A comparison between Grade A and the standard linen fabric is given in Table (1). It will be noted that the two fabrics have much the same performance with results tending to favor the cotton. It will also be noted that a change in structure of the linen could be made to advantage.

TABLE I.—DOPED FABRIC.

	Weight ozs. per sq. yd.	Tensile Strength		Tongue Tear		Burst Pressure		Burst Tear	
		Warp	Filling	Warp	Filling	P	D	P	D
Grade A Linen.	6.0	94	108	6.45	3.83	16.2	1.02	2.5	.48
Grade A Cotton	6.2	93	103	5.06	3.82	18.8	1.13	3.2	.64

(*Continued on page 237*)

An Association That is Always at Work

The National Association of Cotton Manufacturers —Some Present Activities of This Organization

By *Rufus R. Wilson, Secretary*

THE record of The National Association of Cotton Manufacturers during the year just closed has been one of steady growth and constantly widening activity. The plans decided upon in April, 1917, looking to a general readjustment and material enlargement of the work of the Association, have taken more definite form during the past twelve months, and although many important tasks still await full and satisfying accomplishment, it can be said with truth that the National Association in the hands of its present officers and directors has become a comprehensive and really effective instrument for conserving and furthering the welfare and interests of cotton manufacturing and its allied industries. The majority of the tasks of the Association during the past year have been shaped and determined by the unusual demands the world war has made upon all forms of industry. The period of readjustment just ahead will make equally exacting and momentous demands upon the resources and membership of the Association.

BASIS OF ITS PERMANENT ACTIVITIES

The permanent and continuing activities of the Association are conducted by and through the following committees:

Committee on Membership, Albert Greene Duncan, Chairman.

Committee on Labor, James Thomson, Chairman.

Committee on Social Welfare, Arthur H. Lowe, Chairman.

Committee on Taxation, John Skinner, Chairman.

Committee on Transportation, Andrew Raeburn, Chairman.

Committee on Foreign Trade, John S. Lawrence, Chairman.

Committee on Statistics, John Sullivan, Chairman.

Committee on Industrial Research, Frank W. Reynolds, Chairman

Committee on Publications, Charles H. Fish, Chairman.

Committee on Cotton Buying, Randall N. Durfee, Chairman.

Committee on Mill Supplies, L. H. Kunhardt, Chairman.

Committee on Textile Education, Albert Farwell Bemis, Chairman.

Working in a spirit of helpful cooperation, these committees are applying themselves not only to problems of interest to cotton manufacturers, but also to those larger ones which concern American industry as a whole.

COLLECTS TRADE INFORMATION

The Committee on Statistics makes first-hand investigations and also collects and analyzes the information contained in the textile press, state and federal reports, and other sources concerning the industry. Members of the Association needing information on any subject are cordially invited to make use of the services of this committee free of charge.

INCREASED SUSTAINING MEMBERSHIP

The Committee on Membership during the past year has ably seconded the efforts of the President and Secretary in steadily enlarging the sustaining membership, and with it, the resources of the Association. The Association now has 190 sustaining members.

A SPECIAL LABOR COMMITTEE

The Committee on Labor has given constant and thoughtful study to those industrial problems which have been thrown into relief by the world war. At its instance, there has recently been created a special Committee of Eighteen, including one representative of each important textile center in the North, which has already made a most hopeful beginning in the work of stabilizing and standardizing wage and other labor conditions in the cotton industry. The Association has never undertaken a more important task than the one to which the Committee of Eighteen is addressing itself.

ANNUAL CONFERENCE ON SOCIAL WELFARE

The work of the Committee on Social Welfare is intimately related to that of the Committee on Labor, and the two committees work together in close and friendly co-operation. A conference held under the auspices of the Committee on Social Welfare in January last brought together manufacturers from all parts of New England and proved helpful and informing in an unusual degree. It is planned that an annual conference of this sort shall be one of the continuing activities of the Association.

ENSURED MORE EQUITABLE TAXATION

The Committee on Taxation has kept in close and constant touch with the revenue legislation enacted or in process of enactment by Congress, and has been able to secure the insertion into it of provisions assuring just and equitable treatment of those sources of production and profit which have been the chief money contributors to the success of the world war, now brought to a triumphant conclusion.

SEEKS IMPROVED COTTON HANDLING

The Committee on Transportation has been untiring in its efforts to secure the prompt and unimpeded movement of cotton from the South to New England points, and through sympathetic working relations with the Federal officials having charge of transportation, both by land and water, has been able materially to improve conditions which only a few months ago were a frequent source of annoyance and delay. This committee has also continued its efforts to bring about the better baling and loading of cotton, and these important reforms, through its labors, have been brought appreciably nearer than they were a year ago.

AGGRESSIVE WORK FOR FOREIGN TRADE

The Committee on Foreign Trade has addressed itself to painstaking study of the new problems which have been created by the war and which have, almost in a day, transformed the United States from a debtor to a creditor nation, with all the momentous implications which this change must carry with it. The chairman of this committee and some of its members have led in the recent creation of machinery which, taking advantage of the provisions of the Webb law, will enable the textile manufacturers of America to make an aggressive and successful fight for a just portion of the world's trade. The campaign for the protection and extension of the use of trade-marks in connection with American goods manufactured for export is one of the activities to which this committee will address itself in the early future.

The Committee on Industrial Research has continued its inquiries and is now completing plans which in due course should make the various textile schools of the country centers of helpful and constructive investigation. It is hoped that the committee will be able to present its plans at the annual meeting of the Association for final discussion and approval.

The chief activity of the Committee on Publications is an annual handbook, entitled "Standard Cotton Mill Practice and Equipment," which it is intended shall be a vade mecum for cotton mill executives, the data contained in it being complete and accurate, but so condensed and classified that those who use it will at once resolve to keep it constantly at hand. The first handbook was issued in the spring of 1918, and the second will come from the press at an early date.

Looking to the permanent betterment

(*Continued on page* 195)

War Activities of Wool Manufacturers

Personnel of Committees and Their Work. Injustice of Labor's Demand Upon Industry

By *Winthrop L. Marvin, Secretary and Treasurer, National Association of Wool Manufacturers*

A FULL year of devoted and effective work has been performed by the manufacturers and merchants of the War Service Committee of the wool manufacturing industry, which succeeded in December, 1917, the first Joint Committee of Wool Manufacturers cooperating with the Council of National Defense. Of this War Service Committee, Frederic S. Clark, president of the Talbot Mills and president of the National Association of Wool Manufacturers, has been and is the Chairman. Like its predecessor, the War Service Committee was appointed jointly by the National Association and the American Association of Woolen and Worsted Manufacturers.

ORIGINAL MEMBERSHIP OF WAR SERVICE COMMITTEE

Its composition as first chosen was as follows: On behalf of the National Association—

Frederic S. Clark of North Billerica, Mass., president of the Talbot Mills, Chairman.

Franklin W. Hobbs of Boston, president of the Arlington Mills.

George H. Hodgson of Cleveland, vice-president and general manager of the Cleveland Worsted Mills Company.

Nathaniel Stevens, president of M. T. Stevens & Sons Company, North Andover, Mass.

Wiliam M. Wood of Boston, president of the American Woolen Company.

On behalf of the American Association—

Herbert E. Peabody of New York, selling agent of the Shelbourne Mills, vice-president and secretary.

Robert T. Francis of New York, selling agent of the Pontoosuc Woolen Manufacturing Company.

J. P. Stevens of New York, of J. P. Stevens & Co.

A. L. Gifford of New York, of the Worumbo Company.

George B. Sanford of New York, of Sanford & Russell.

Mr. Peabody, who was selected to be the committee's special representative in Washington, resigned his secretaryship and membership in the committee to become Chief of the Woolens Section of the War Industries Board, in association with John W. Scott, of Carson, Pirie, Scott & Co. of Chicago, who early in June became the Director of the Textile Division of the War Industries Board. In this new post, as in his previous duty, Mr. Peabody manifested a fine spirit of energy and tact, winning the approbation of Government and manufacturers alike. He was succeeded as Secretary and Washington representative of the War Service Committee by George B. Sanford, who in turn proved an indefatigable officer, while for the vacant place on the committee the American Association named Manton B. Metcalf, of Metcalf Brothers & Company, New York, who had followed Mr. Peabody as president of the Association. When Mr. Gifford resigned from the committee to undertake another important public responsibility, he was succeeded by Charles H. Wilson of Pittsfield, Mass., of James & E. H. Wilson. J. J. Nevins, secretary of the American Association of Woolen and Worsted Manufacturers, and Winthrop L. Marvin, secretary of the National Association of Wool Manufacturers, acted as assistant secretaries of the committee.

REVISED SPECIFICATIONS FOR ARMY CLOTHS

Beside the War Service Committee, another chosen group performed a notable service to the Government and the industry in the early part of the year—a board of experts created in March, 1918, by Major General Goethals, Acting Quartermaster General, to revise the specifications for army uniform fabrics in the light of the latest experience. This Board consisted of Mr. Clark (Chairman), Mr. Peabody (Secretary), Mr. Hodgson and Mr. Wilson of the War Service Committee, Stephen O. Metcalf of Providence, of the Wanskuck Company, Jacob F. Brown of Boston, of Brown & Adams and of S. Slater & Sons, Inc., and Major Courtland Nixon of the Quartermaster Corps. In March, 1918, the new Board, having acted with admirable promptness and thoroughness, submitted to General Goethals a new set of specifications which was immediately made effective. The new specifications increased the weight of the shirting flannel from 8½ to 9½ ounces, of the uniform cloth from 16 to 20 ounces, of the overcoating from 30 to

32 ounces, and of the blanket from 3 to 4 pounds, and also called for somewhat finer qualities of wool in some particulars. Like the longer work of the War Service Committee this task of the board of experts was well and smartly fulfilled by representative practical men who were thorough masters of their calling.

WAR SERVICE COMMITTEE CONTINUES

Though the War Industries Board passed out of active existence just before the new year, and Mr. Scott and Mr. Peabody retired, while simultaneously there was a closing down of the labors of the purchasing offices of the Quartermaster Corps in New York, the War Service Committee will continue for some time longer to represent the industry in its relations with the Government, or for so long a time as may be necessary. This is the desire both of the Government and of the Chamber of Commerce of the United States, under whose auspices the War Service Committee of all of the industries needed in war were originally established.

Careful records have been kept of the diversified work of the War Service Committee of the Wool Manufacturing Industry as well as of the Joint Committee of Wool Manufacturers which preceded it. These records and their accompanying files of correspondence will be a dependable source of information on the strong and ready part which the American wool manufacture bore in the great war. From the beginning to the end, it is thoroughly just to say that the industry proved disciplined, efficient and responsive to every need and order of the Government.

INAUSPICIOUS TIME TO DEMAND WAGE ADVANCE

The armistice has brought perplexing problems to manufacturers as well as to Presidents, premiers and diplomatists. Suddenly the eager activities of war time have subsided, and with the readjustment of contracts and the cessation of military business the mills have passed into a waiting period of semi-idleness. Most inauspicious would such a time appear to be for any new demand upon the part of textile labor, whose wage rates have been voluntarily advanced by manufacturers to a total of fully 100 per cent. in four or five years, an increase far exceeding the general advance in the cost of living in the interval. But from one of the textile unions has come a proclamation that an eight-hour day or a forty-eight-hour week must be established by Feb. 3, on pain of a general strike or shut down of the textile industries. American textile mills in the northeastern States, where the main part of the wool manufacture is located, are now mostly operating under a fifty-four-hour law, by act of the various Legislatures. In Great Britain the standard working period is a fifty-five and-one-half-hour week, while sixty hours is still permissible in some countries of the Continent.

It has been very clearly determined by recent investigations that, while relatively little loss of production may result from shortening hours from sixty to fifty-eight or fifty-six a week, a substantial loss ensues when the working time is further cut to a forty-eight-hour basis. Thus, such a radical step as is now demanded by a part, though perhaps by a small part, of textile labor inevitably means a loss in efficiency and an increased cost of output, for the overhead charges of manufacturing are inescapable. Therefore, an eight-hour day or a forty-eight-hour week would most certainly increase the difficulties of competition with foreign mills when conditions return to normal.

This fact, apparently, is overlooked by leaders of textile unions, who have been bestowing open and active support upon the political forces which enacted the Simmons-Underwood tariff for revenue only, a measure which, in the seven months of its operation before the war intervened, had closed down from one-fourth to one-third of the machinery of American worsted and woolen mills and thrown a fourth or a third of their workers into idleness.

If there were a national requirement of an eight-hour law or a forty-eight-hour week upon all industries alike, the textile manufacturers of the country would, of course, comply with it. But after the record of fulfilment of every duty which they have achieved throughout the war, and in the face of wage advances greater than those bestowed on any other industry except the temporary and special manufacture of munitions, this effort of a textile union to force a shortened week upon them does not seem exactly like an evidence of good will or a loyal appreciation of the community of interest which ought rightfully to exist between employers and employees in a great business of such proved vital consequence to all America.

Knit Goods War Service

Cooperation of Committee with Government of Distinct Value

By *C. B. Carter, Secretary National Association of Hosiery and Underwear Manufacturers*

IMMEDIATELY upon the suggestion of the Chamber of Commerce of the United States that War Service Committees be organized by the various trade organizations, the National Association of Hosiery and Underwear Manufacturers, at a meeting in New York on Jan. 15, 1918, organized War Service Committees of the several divisions of the knitting industry. Mr. F. L. Chipman, of Charles Chipman's Sons Co., New York, was elected chairman of the general committee, and several sub-committees were provided for, but these sub-committees were called upon for little or no service.

The Knit Goods War Service Committee, through its chairman and through the office of the National Association of Hosiery and Underwear Manufacturers, at once established and maintained for the duration of the war a point of contact between the War Industries Board and the War Trade Board, and so far as these boards could make it possible, co-operated with them for the best interests of, first, the Government, and, second, the knitting industry. The Association and the Knit Goods War Service Committees cannot too highly praise the uniform courtesy shown by Lincoln Cromwell, in his capacity as Chief of the Knit Goods Section of the War Industries Board, and his willingness at all times to not only work in harmony but to suggest means for attaining the ends toward which the Knit Goods War Service Committees were striving.

The War Service Committees were always at the call of war administrative bodies at Washington, responding to every request for conferences, and it was through conferences with these War Service Committees that the now obsolete schedule for packing knit goods was adopted.

The Knit Goods War Service Committee strenuously opposed the curtailment of the production of silk fabrics, as called for by the Conservation Division of the War Industries Board, and were in a fair way to establish the merit of their claims when, fortunately, the war was brought to a sudden termination.

The activities of the War Service Committees were directed with force and energy in an effort to have removed the restrictions on the importation of latch needles, in which there was so great a shortage that many hundreds of knitting machines were idle, manufacturers reporting to the Association and to the War Service Committees that they were unable to obtain adequate supplies of latch needles of domestic manufacture.

Perhaps the most successful undertaking of the organization was the movement for a provision that cotton yarns be sold on net weight basis. After much correspondence with the Price Fixing Committee of the War Industries Board that board, in announcing maximum prices of cotton yarn to Dec. 31, provided for sales on the basis of net weight.

It may be said of the Knit Goods War Service Committees that they never shirked a responsibility or ignored a call for service. There can be no doubt that these committees were a potent factor in the establishing and maintaining of proper relations between the Government and the knitting industry, and that they were coming into the full field of their usefulness at about the time hostilities ceased.

The Path of Progress and Prosperity

A Quickened and Vitalized Nationalism Necessary for Success of Domestic Industries

By *Thomas O. Marvin, Secretary of The Home Market Club*

TWO elections of far reaching importance have been held within recent weeks. In England Lloyd George was returned with a large majority. In the United States the Wilson administration, in spite of an unprecedented appeal for endorsement, lost control of both the House and the Senate. The result in each of these instances affords encouragement for stable government and stable business.

In Great Britain an effort had been made on a scale never before attempted to force through a radical labor program that would have revolutionized British industry and set tides in motion that would in time have swept around the world and affected the industry of all leading nations. The British elections are a guarantee that such changes as will be found necessary will be made in an orderly manner and as a result of evolution, not of revolution. The election in the United States was also a demonstration that the tendency here is once more toward conservative and constructive statesmanship. The country is weary of inept leadership and of Utopian experiments. It resents the substitution of balderdash for statesmanship, and of cosmopolitanism for Americanism. England sternly declines to adopt a socialized world order, and America rejects Wilsonian internationalism.

PROTECTION FOR ESSENTIAL INDUSTRIES

In France the same trend was manifested in the handsome vote of confidence given by the Chamber of Deputies to Premier Clemenceau. The war was fought to vindicate the rights of free nations and secure the liberty of independent nationalities. France, England and the United States have served emphatic notice that they intend to control their own destinies and shape domestic policies in accordance with national needs. There has been an aggressive tendency, particularly manifest in our own government, to submerge national interests to the imaginary necessities of a federated world. The "new freedom," clamped upon the United States in 1913, was to go forth in white armor and conquer the world. Emblazoned on its banner, as the all-conquering object of its crusade, was the Wilsonian motto: "The removal, so far as possible, of all economic barriers." Against the impregnable common-sense of Great Britain the crusade crumbled at its first assault, and all England rallied to the cry of protection for essential industries. France gave an equally frigid reception to this new propaganda of free trade. Its leaders of government and business met the proposition for the removal of economic barriers by the adoption of a reconstruction program along the lines of protection to national industries.

"DOMESTIC SAFETY" IGNORED

Our hope for the future of American business, for the prosperity and welfare of the American people, rests upon the promise of a reawakened Americanism that was foreshadowed by the result of our recent election. We have been living through days of strenuous business activity and of unprecedented industrial expansion. Wages have risen to heights that were not dreamed of three years ago. The margin between American and foreign wages is far greater than it was before the war. Raw materials, particularly wool, are accessible to foreign manufacturers at lower prices than to American manufacturers. Problems of industrial readjustment have been far more carefully worked out in England and in France than they have in America. Our Government has been devoting its attention to the fascinating problem of seeking "international justice" and has quite completely ignored the vital question of "domestic safety." As the President confessed to Congress on Dec. 2: "Our thoughts have dwelt of late upon Europe, upon Asia, upon the Near and the Far East, very little upon the acts of peace and of accommodation that wait to be performed at our own doors."

There is only one remedy—a reawakened Americanism and a reenactment of American policies. Internationalism will not save America. Nationalism quickened and vitalized is the need of the hour. Let us invoke the spirit of Washington, of Hamilton and of Lincoln and encourage and protect the industries of our country. This is the path of security, of progress, of prosperity.

Effectiveness and Service in Foreign Trade

Must Be Considerate of Customer's Viewpoint—German Commercial Vices Must Be Avoided

By *Hon. William C. Redfield, Secretary of Commerce*

Some business men seldom agree with all that Hon. William C. Redfield, Secretary of Commerce, says, and some never agree with him at all.

Yet Secretary Redfield speaks to business men frequently and his spoken words seldom give offense, while his published statements often do. In an address to a group of textile men a few years ago he alluded to the fact that he was a much misquoted man.

Perhaps the latter fact explains the hostile reception accorded some of his recently expressed opinions on our foreign trade policy. Nevertheless, his address at the Reconstruction Conference in Atlantic City last month was entirely devoted to this subject and was enthusiastically received and endorsed by that very representative gathering of business men.

The address is a most optimistic review of the outlook, is replete with helpful suggestions, and the high ethical standards that he advocates are no more Utopian than they are Hunnish; effectiveness and service (not ruthlessness) is the basis of permanent and cordial commercial relations that he proposes.

AT the opening of our national history our fathers used a great phrase which was never more potent than it now is. They spoke of having "a decent regard for the opinion of mankind." We have had a vision of great selfishness, of a nation bent on material power forcing its way ruthlessly and apparently successfully into economic and at last into military supremacy. We have seen the great tragedy of its failure and from its ashes has arisen a conception of the unity of nations that is clearer than it ever was before.

At the close of a great war the nations who fought our fight before we entered it, face the necessity of reconstruction, and we are beginning the task of readjustment—not to the old peace conditions, but to new ones. I am more and more impressed in reading current discussions and reflecting upon them, with the truth that readjustment is very largely a state of mind; that it requires not so much a program, a fixed line of procedure, as an evolution; that it is not necessary, indeed that it is impossible to include in it the unsettled problems of the past, present and future; that sufficient unto the day is the evil thereof; and that while we are discussing it the process itself is proceeding almost silently all about us.

UNWARRANTED EMPHASIS ON FOREIGN TRADE

More exclusively than is wise, the discussion on commercial lines seems to run to the matter of foreign trade; not that our international commerce lacks vital importance, but that we omit much quite as essential. We have even more pressing domestic duties and opportunities. There is urgent need to develop our resources of minerals, to produce potash, to establish firmly our new industries, to reclaim fertile swamp lands, or to find and use their products, to study our native fibers to free us from dependence on foreign sources for them, to develop our roads so that they shall no longer be a national reproach, to set up effective motor-truck services, to get our waterways made and set at work with modern craft and terminals, to finish our surveys so that commerce may safely use all our ports and coast waters, to study and develop the great empire which is Alaska, to find and use for wise service the vast resources of the Philippines and Porto Rico, to put our waterpowers into service, to seek and end industrial wastes, to co-operate further in the great work already done in commercial conservation and standardizing, and in these and kindred ways to make America truly independent. This work must be done and yet our foreign trade must not be left undone. There is not one task alone but many, and these are not simple but complex.

A CHANGED POSITION TOWARD FOREIGN TRADE

We stand, moreover, as regards our foreign trade in an altered position from that which existed before the war. The problems of the future are new, our standpoint is new, our relation to them is new. Thoughts that we thought up to midsummer of 1914 we can think no more. The facts on which our thinking was based up to that same midsummer are altered. The nation has a new vision. It has made new and unprecedented sacrifices. It may be called upon for more. We are associated more closely with other nations than we ever dreamed was possible. We have had bitter tasks to do and have done them well. We have others perhaps as hard ahead of us. It is because the whole situation is so strange, so new, so unlike anything that ever happened to America before, that I am glad for this opportunity of suggesting for your thought some phases of the new situation now before the country. This is done with the frank recognition that the study is partial and incomplete, necessarily so because of the novelty of the situation. We may look for facts and study movements, but we must not dogmatize. In what follows I am giving only personal views and impressions which should not be understood as an official announcement of policy.

GREATEST CREDITOR NATION

Let us go back five years and think only of things domestic for a moment. We were a debtor nation. Our bankers would then have said that paying our obligations to Europe, amounting as they did to many billions of dollars, must be a slow and difficult process. It was not so. It was done almost in a few months. If you had asked the bankers how many investors there were in America at that time who would buy bonds for investment they would have said about 300,000. Our last loan had 21,000,000 subscribers to it. Had you asked what was the largest sum any nation had raised in any single loan they would have told you a sum much smaller than the five billions that Great Britain was thereafter to raise. You are subscribers to a loan, the fourth in series, made with a prospect of a fifth to come, subscribed in the certainty of a United War Work Campaign to follow and a Red Cross campaign to follow that, in which almost seven billions were raised, something none of us ever dreamed of five years ago.

Your country which looked to London and Paris and Amsterdam, perhaps—I am sorry to say—to Berlin and to Vienna, for funds with which to operate here, so that many of our large corporations had part of their capital owned in those financial centers—your country is now the greatest creditor nation in the world. The great debt owed to Europe has long ago been paid, and Europe now owes us over $8,000,000,000, and she will add to it for some time to come.

OUR WAR SACRIFICES

We then never thought in our happy America of the shortage of food. The man who told us that we were at some time every year within three or four months of starvation was, but is no longer, merely an interesting theorist; the novel experience of saving food has come to very one of us and may come again. The idea that America should give up something from her breakfast tables that others might eat would have seemed very queer to us five years ago, but you are familiar with it now. We had used up our entire exportable surplus of wheat less than two years ago. Our associate nations said we must send many more scores of millions of bushels of wheat else the war might go wrongly. So out of the savings from American tables there went after that to Great Britain and France more wheat than the visible exportable surplus of wheat when the season started.

It will be years before the history of our sacrifices can be written. We have sent our boys into the fight; we have given up our businesses and we have taken food from ourselves and from our children that we might have less that others might have more. It has altered American thought toward the world and it has altered also the thought of the whole world toward us.

DOUBTFUL ABOUT USE OF UNITED STATES' NEW POWER

Put yourself to-day, if you please, in the place of a British, French, Belgian or an Italian banker or publicist. You remember that the Holy Book says the prophet went up on Mount Carmel and saw a little cloud in the west which shortly overspread the whole land with refreshing rain. If you were now a British, French, Belgian or an Italian merchant or banker you would have seen a little cloud in the west which soon overspread everything, and you would wonder, very naturally wonder, what it was to mean in the days that were to come. You would not be accustomed to owing somebody on the western side of the ocean. You would wonder what they were to be as creditors. Were their needs or disposition such that they would give you a chance to get on your feet before they called on you for payment? Looking, you would have seen in the west a vision of enormous power. You would have seen it develop from peaceful industry into war industry upon a colossal scale. It suddenly, so it would seem, had poured forth great armies with others coming and supported them with vast economic and financial resources.

It would be quite natural that you should say as a European publicist or business man: What is the spirit and purpose of this tremendous power? What will it do? You see the world has visualized American strength and found it vast. What is the heart that is behind the power? That question is being asked in the minds of the nations with whom we have been associated in the war. They say yonder: "They have been unselfish so far, this power in the west; they have given their sons and their money; they have been generous without stint." "What will they now do with the power which they have acquired?" We, ourselves, could not escape such thoughts. Their outlook upon the world is from a new standpoint, as our outlook upon the world is also from a new standpoint. These serious questions they cannot but raise; we must answer.

A FOREIGN COMMERCE OF REAL SERVICE

Of course we need and are to have a large and expanding foreign trade, free, as soon as may be, from all restraints save those of economic law. The Department of Commerce has asked of Congress largely increased appropriations for our commercial service. We hope to carry the Gospel—it ought to be a real "Gospel"—the Gospel of American desire for business service all over the world until it shall have fruitage in every city and every land.

But let us think for a moment what that means. Is it either business or service to go abroad to grasp and get regardless of the method or the effect? Did our vision and our unselfishness lapse on the 11th of November? Is it true, as was I think carelessly said by a gentleman in one of the war services to my associates, that patriotism ended when the armistice was signed? I think not. We have not liked, you and I, the German methods of carrying on foreign commerce any more than we liked German militarism. They came here backed up by a government organization which permitted concerns to pool their losses, which allowed them to sell in one country so that tariffs might be useless and make up the difference by high prices in another land, which gave them preferential rates on railroads and special advantages on government controlled steamship lines and their campaign was at times accompanied by a wholesale system of bribing. We did not like that then. We must not act in a similar spirit now or ever. We can not change the American eagle which flies high to the hog which roots low.

MUST NOT COPY GERMAN METHODS

Commerce, if it is to stay, must be a constructive force and never a destructive thing. We resented the German attempt at economic conquest backed up

(*Continued on page* 159)

Foreign Trade Obligations to Domestic Interests

Some of the Factors Which Have Forced Us Into Prominence as an International Figure

By *James A. Farrell, President of the U. S. Steel Corporation and of the National Foreign Trade Council*

THE remark has become a commonplace that one of the most notable results of the great war was to stimulate the interest of American manufacturers in foreign trade. But to understand the bearing of such a statement on present conditions, it is necessary to place it in its proper setting. Before the war a concerted movement already was under way to lend a new vitality to American competition in the markets of the world. The immediate prompting for that movement was the effort to discover means of relief for the depression which then existed in most of our staple industries.

ORIGIN OF NATIONAL COUNCIL

It was a time when the activity of American manufacturing production was sensibly retarded; there was a large and steadily growing mass of unemployment, besides a very extensive stoppage of machinery. A steady increase of foreign trade which had begun in 1908 had been arrested. Exports in 1914 had fallen below 1913, while imports had increased. When the first national foreign trade convention met in May, 1914, the keynote of the proceedings was the relief of adverse domestic conditions by the opening of new markets abroad for the products of American workshops. This was the purpose for which the National Foreign Trade Council had been founded and on whose pursuit all its efforts had been concentrated. Circumstances then unforseen promptly changed the whole aspect of our foreign commerce. The war restored prosperity to the United States. Abnormal demand and prices for munitions, foodstuffs and raw materials accelerated the pace of industry and recalled idle hands to the forge. Within two years after the country emerged from the shadows of impending depression the annual excess of exports over imports had gone above two billion dollars; the increase in domestic trade had risen ten times and that of foreign trade seven times over the established yearly increase before the war.

Thus, an unprecedented proportion of American labor and capital became dependent upon foreign markets. The outstanding development of those first two years was the entry of small manufacturers and merchants into foreign trade. Factories once content to serve the home market alone had grasped overseas opportunities, and had gained into a wider outlet, thus supplying a balance wheel against domestic depression. Workmen once indifferent as to whether their hand work sold in Indiana or India began to realize that their employment partly depended upon sustained foreign demand. The entrance of the United States into the war naturally increased the demand upon American factories for munitions of war and staples that had theretofore been manufactured abroad. Hence, an enormous expansion of manufacturing plants. New buildings were erected, new machinery installed, and large amounts of capital were invested in enterprises whose permanence must be largely conditioned on finding a foreign demand for their products. Thus, the widely diffused interest in the possibilities of external trade rests as never before in our history on a well defined basis of self-interest.

SLOW TO SEE U. S. POSITION

A large proportion of those who directed our industries are even now only just beginning to see the necessity for acting on them. Early in the war the conviction took root that the United States was destined to occupy in the near future a much more important position in the affairs of the world than it had done in the past. The prediction was hazarded that the dollar was about to supplant the pound sterling in the international exchanges, and that New York would shortly take the place of London as the financial center and clearing house of the world. But the question would occur: "What makes the center of gravity in industry and finance?" The obvious answer was that it is the net result of the various influences which make for economical production and distribution. It had to be admitted that up to that time the center of gravity had not been in the United States. We had grown, prospered and built up great wealth out of the natural resources of this continent, but there had been a steady flow of raw materials from this country to Great Britain and Continental Europe, to be there manufactured and distributed around the world. In the last normal year, 1913, the exports of the United States were valued at $2,448,000,000, of which 68 per cent. was made up of raw and partly manufactured products, and 32 per cent. of fully manufactured articles. Of the $772,000,000, which constituted the 32 per cent. of manufactured exports in 1913, it is significant that $430,000,000, or nearly 60 per cent., came under the three classifications of "agricultural implements," "mineral oil," and "iron and steel," the three lines of industry built up by large corporations based upon the principle of cooperation and the command of sufficient capital, resources and ability to withstand initial losses comparable to the cartels and cooperative selling organizations of Europe. The influences that favored our competitors in foreign trade had been labor supply, capital supply, experience in industry and world trade, and the prestige, good will and facilities of an established business. But in the group of industries referred to we had evidently become sufficiently strong to meet the most highly developed forms of competition in foreign markets on equal terms.

EXPORTERS BY COMPULSION

The task before us to-day in respect to foreign trade expansion is not so much to convince as to advise and guide. Entrance into foreign trade is no longer a matter of choice with us. Everybody in these times is ready to concede the significance of the fact that the American industries presenting the most nearly unbroken record of prosperity and sustained labor employment are those which have been accustomed regularly to market oversea from 10 to 35 per cent. of their products. Most men who think on the subject at all are prepared to go a step further and to concede that the production of commodities upon a competitive basis of costs, in amounts sufficient to supply home consumption and furnish material for foreign trade will be the basis of our future national strength and prosperity. On the money side there is equal readiness to agree that strength of finance will count for even more than it has ever done before in the development of external commerce. An eminent banking authority sums up the matter by saying that in the coming expansion of world-wide enterprise, the nation that can not only give its own trade on both the import and the export side the benefit of complete financial organizations and stability, but can extend to other nations the benefit of capital and commercial credits, will be at a great advantage over any nation that happens to have its hands full in maintaining its own equilibrium, or which cannot spare capital and credit.

MUST PROVIDE CAPITAL

More than this, there can be no great revival of trade in the countries where we hope for it most unless we are ready to provide capital for their development. We must enter into the industrial life of those countries, engage in enterprises with them and create out of their resources the new wealth from which will come our pay. Habits of investment are acquired by experience, and conditions in this country have favored investments in local enterprises. We have just begun to acquire experience with investments outside of the country, and the development among us of a body of cosmopolitan investors, such as has long existed in England, must vitally affect the future of our foreign trade. It means, however, an enormous stride in commercial and industrial capacity that we should have passed out of the ranks of the debtor nations and become ourselves large creditors of all the Allied countries.

ASSISTANCE OF WEBB LAW

It may be hoped that the structure will be raised the more easily because of the concession tardily secured from Congress in the shape of what is known as the Webb Act. This you know was a measure to which we had to devote three years of continuous agitation and which was intended to relieve export trade from the paralyzing influence of the anti-trust laws. These not only prevented concerted action by business men in foreign markets, even among producers of non-competing goods, but they hampered the financing of the results of any combined effort whose legality was open to question. Manufacture devised by American inventive skill and fabricated by American labor, well adapted for foreign needs remained unexported because the cost of introduction to the oversea consumer was too great for the individual company, and co-operative effort on the European plan legally too hazardous. Meanwhile, it was possible for leagues of foreign buyers skilfully to play one group of American producers against another and to secure the materials they had to sell at less than domestic prices. The Webb bill promised freedom to American export trade, opportunity to smaller American manufacturers and stimulus to our entire American commercial and industrial life. It has at last become possible to put to the test its efficacy in providing for the maintenance of highly organized export service at a minimum cost to the participants. We shall soon discover whether our expectations are to be justified by the co-operative organization of credit extension which manufacturers dependent upon a quick turnover of capital are unable to provide; whether it shall be found possible to bring about, under the provisions of this act, a division of foreign business upon an agreed basis adapted to the mutual interests of all the participants from the standpoint of sustained labor employment, and ability to produce at a price calculated to meet foreign competition.

The value of presenting a united front, industrially, commercially and financially, in foreign markets, cannot well be overestimated. The abnormal conditions attending the period of economic reconstruction that lies immediately before us, will of course demand the broadest and most generous interpretation of the fight of combination.

GERMANY AND ECONOMIC WARFARE

In this matter of "economic warfare after the war," there should be no ground for misunderstanding our position. An unrepentant Germany, still wedded to her idols of militarism and the relentless application of superior force, can establish no right to demand the raising of the economic blockade which has been a most potent instrument in ending the war. In pursuance of the policy of combining national and commercial interests the German nation thought itself entitled to plunder its neighbors for its economic or commercial needs. Thus Germany's policy of peaceful penetration in the economic sphere was the forerunner of the war of aggression which she launched in 1914. But when we have exposed German ambition and denounced German methods it would be a curious way of preventing their revival by committing ourselves to the acceptance of German principles. Only in the theory that the menace of Prussian militarism must survive can there be any reason found for looking to the future security of the world in the waging of a perpetual bloodless war, inspired by the same enmities, suspicions and fears that but lately divided the world to-day. Nor can the fact be ignored that in a trade war, as in the clash of military force the balance of slaughter must be reckoned with, since the casualties cannot all be on the other side. It is certain that if Germany is to be compelled, as she ought to be, to replace the wanton destruction she has wrought in Belgium, Northern France, Poland and Serbia, she must have access to the raw materials of manufacture, by the conversion of which into finished products she may earn the money needed to pay her debts.

As a matter of fact, given the frank acceptance by Germany of the terms of peace which will be dictated by the Allies, there can be no reason for separating her economic wants from those of the rest of Europe. These will be sufficiently imperative to use up all the surplus foodstuffs and raw materials that can be spared for many months to come.

RELEASE OF GOVERNMENT CONTROL

I take it that we are all desirous to see the Government in our own country as well as the governments of our Allies, release the control over commerce, industry and transportation which has been justified by the necessities of war. Meanwhile, the War Trade Board finds

(*Continued on page* 197)

A New Factor in World Commerce*

Should Commercial Corporations Receive International Charters?

By *Richard S. Harvey, Washington, D. C.*

A NEW star is shining above the legal horizon.

Although no dictionary, no encyclopaedia, no law treatise has yet greeted the new arrival with any mention, let us not be wanting in welcome to the newcomer. True to American standards of alertness and efficiency, let us on our part grant a cheerful welcome to the radiant visitor, for its beams will bring to numerous peoples helpful assurances of commercial service and international good will.

This law luminary, this daystar of a new era, is comprised in the term "International Corporation." Thanks to the wisely liberal policy of language enlargement in force among English-speaking races, the usefulness of the term is sufficient justification for its employment. The novel thoughts of to-day are the commonplaces of to-morrow; and after a brief interval we shall no doubt discover the expression "International Corporation" has grown familiar to our minds, through daily use, and has begun to occupy a recognized place in the current literature of those future days, soon to be here.

In a recent address by a brilliant writer and distinguished leader in the improvement of American political and civil affairs, I find this thought-suggesting passage:

"Our governmental framework has been like that of a cottage erected for a family without any provision at all for an increase in the family's size, and to which has been added from time to time wings and stories and corridors and staircases, quite unrelated and inaccessible to one another; while what we want is a structure of the old colonial type, with its broad central hall and adjoining wings, every room accessible to the center, and with every facility for successful operation."

And a little later, the same writer, Mr. R. Fulton Cutting, adds this hope-inspiring conclusion:

"We are discovering the possibility of citizen co-operation through the agency of organization."

"The agency of organization!" That is the prime means of success in the business life of the United States; and in this momentous period of human change and progress, it behooves every thinking man to project his mind into the realms of world-commerce, and to discover in what respects "we are without any provision at all for an increase in the family's size" and to reshape our national facilities and housekeeping accordingly.

Hidden subsidies and secret aids to German commercial institutions and unfair methods that descend to depths lower than "Punic faith," are being unearthed in every quarter, until it would appear that President Wilson's words,—"If the peace presently be made is to endure it must be a peace made secure by the organized major force of mankind"—call for the exercise of that paramount "force" in reorganizing and to some extent reforming the business methods and machinery of international trade. In that way and (as I see things) by no other means, will national antagonisms, frictions and acute misunderstandings,—oftentimes the primary causes of war,—be minimized, even though they cannot be entirely removed. And toward the accomplishment of this much-to-be-desired end, we believe a system of standardized international corporations with broad charter-powers conferred, exercised and practiced under special provisions of treaties or conventions between the nations concerned, will prove the beneficent force that can solve numerous difficulties and remove many occasions for just complaint.

However, lest we fall into the vice of drawing conclusions before we have definitely established our premises, we ask permission at this stage to discuss briefly two fundamental points,—for the essential thing after all is to determine whether the plan or system we have to propose can be carried into effect without any clash or interference on the part of these essential and basic concepts.

FREE GOVERNMENT DEFINED

Concerning those forms of government which perpetuate civil liberty and free institutions, Blackstone has this to say:

"That constitution or frame of government, that system of law, is alone calculated to maintain civil liberty which leaves the subject (or citizen) master of his own conduct, except in those points wherein the public good requires some direction or restraint."

COMMERCIAL COMPANY DEFINED

Concerning our other point—private business corporations—Bouvier thus defines that artificial person:

"A body, consisting of one or more natural persons, established by law, usually for some specific purpose, and continued by a succession of members, created wholly or in part for purposes of private emolument."

It will be our present purpose briefly (in the language of surveyors) to "extend" each of these elemental phases of civilized life, and to observe whether, if at all, they clash or in any material degree interfere; or whether (as I believe), they occupy uninterrupted parallel courses.

Let us begin with certain axioms concerning the evolution of modern national existence, and of the modern business corporation, and follow the development of each, somewhat in the manner of the familiar parallel column.

PROGRESSIVE STAGES OF GOVERNMENT

First—All government consists in the surrender of some portion of individual liberty.

Second—Federation consists in a surrender of some portion of local or state government to a central authority.

Third—The League of Nations to Maintain a Just Peace calls for a further surrender to a paramount control.

STEPS IN THE ADVANCEMENT OF CORPORATE IDEA

First—In the usual form of commercial companies, an individual investor surrenders the initiative and the control of the enterprise to the corporate body, subject to a variable degree of local governmental control.

Second—Since a comparatively recent date, but with a duration no one can predict, the Federal Government has grown to be a potent, if silent, factor in practically all corporate managements and activities. Recent war-time experience in that field has taught us we cannot think locally hereafter. We have crossed that Rubicon; and (whether for good or for evil) henceforth the Federal Government is destined to be a potential participant in corporate enterprises.

Third—In an international corporation, this national prerogative of corporation control must in its turn become subject to the power conferred by treaty or convention on some international tribunal or body—a supreme control that measurably corresponds to the paramount directing power pertaining to the International League to Enforce Peace.

LINES OF PROCEDURE NECESSARY

If (as I assume) it is apparent from this comparison that the principles of free government and of corporate management of business enterprises not only do not collide, but do actually support and assist one another, in proper hands—I shall feel encouraged to advance one step further and to outline the natural, and, indeed, necessary channel along which this new current of business progress must flow, if indeed it is to go forward at all.

First—The instituting of international commercial corporations calls for a general Federal incorporation act, available to every domestic corporation engaged in foreign trade.

Second—Next in order must come a treaty or convention, prescribing the form of the corporate charter, by-laws, etc., when it is proposed to apply for international rights; and when those preliminary requirements have been favorably disposed of, providing for the management of the enterprise, and the conservation of its property and interests in peace and in war; and specifically guaranteeing to each corporation thus privileged the right to treatment identical with that accorded to domestic corporations through (a) absence from liability to preliminary attachment, (b) the ability to employ the judicial machinery, and (c) fair treatment in all other quarters material to its successful operation.

Third—Back of these corporate bodies and at their ready disposal should be the quasi-judicial power of the League, so that in case of actual or threatened discrimination or of manifest unfairness, means for a prompt hearing by an international tribunal and a way of redress will be provided. Likewise, protection for its interests in some prescribed manner in seasons of war is a particular that must receive careful consideration.

Within the limited scope of our paper, we trust we have now disclosed convincing proofs that there is nothing inherently impractical—much less antagonistic—in the upbuilding of a system of incorporated bodies, each empowered to do business upon equal terms with domestic companies in one or more foreign countries, upon compliance with certain requirements corresponding broadly to those contained in the general corporation laws in force in all or nearly all of the States.

The convention of Berne (operative since 1887, with extensions of rights conferred at Paris in 1897) affords international privileges as to copyrights, in numerous countries. While the United States was not among the fifteen signatories of that convention creating the International Copyright Union, it has acted in substantial compliance with the principles there enunciated and applied; and by 1914 Presidential copyright proclamations had been issued securing copyright privileges in the United States to citizens or subjects of the following countries: Austria, Belgium, Chile, China, Costa Rica, Cuba, Denmark, Dominican Republic, Ecuador, France, Germany, Great Britain and the British Possessions, Guatemala, Honduras, Hungary, Italy, Japan, Luxemburg, Mexico, Netherlands and Possessions, Nicaragua, Norway, Panama, Portugal, Salvador, Spain, Sweden, Switzerland and Tunis. By a general Federal statutory provision (act of Feb. 20, 1905, as amended) trade-mark privileges in the United States are accorded to those persons who are citizens or subjects of "any foreign country which, by treaty, convention, or law, affords similar privileges to citizens of the United States." Thus it will be seen that to permit the filing of duplicate incorporation papers in certain specified countries, with right to do business and to receive treatment as a domestic corporation in each of these countries, is only an extension of principles recognized as practical and actually applied in matters pertaining to trade-mark and copyright law.

CONVENTION TO FORM INTERNATIONAL COMPANIES

If more specific instances of corporations organized in the United States to operate in foreign parts are demanded, we can point to the Maritime Construction Company organized here to build and maintain a transcontinental canal at Nicaragua; and to the company which for years operated the railroad at Panama.

Still more closely in point and therefore more convincing are:

First—The Convention of Jan. 20, 1914, whereby each of fourteen countries (including the United States, and *mirabile dictu!* the Imperial Government of Germany), agreed to use its utmost endeavors in the interests of *safety of Maritime passenger traffic!* This pact goes far toward demonstrating how readily matters of current interest and material advancement are being taken up and disposed of by international conference and agreement, and the argument arises promptly and naturally—why not a convention covering the institution of international companies, with right to trade in foreign countries upon equal terms with domestic concerns, provided reciprocal rights are accorded to citizens of those lands?

Second—But most nearly in point is the International Convention of March 14, 1884, regulating the ownership and protection of maritime telegraph cables. It is obvious cables connecting two or more independent countries in every instance are subject to the laws of the several countries up to the three-mile boundary of jurisdiction, and elsewhere are under the general protection of international law, excepting insofar as treaty rights have been negotiated and placed in force.

In brief, corporations owning property of this description are naturally and necessarily *international commercial* corporations; and, upon compliance with certain requirements of general application the proposal I am now making merely extends and offers to *all* commercial corporations the principle of protective supervision embodied in the Convention of 1884; thereby conferring upon them rights substantially similar to the privileges specially and specifically enjoyed by cable companies under

(*Continued on page* 197)

* Delivered before the Social and Economic Section of the American Association for the Advancement of Science, Baltimore, Md., Dec. 28.

Textile Thrift in Salvage Service

War Legacy Approximates 225 New Million Dollar a Year Concerns for This Industry

By a Staff Correspondent

THE war has brought to the textile industry, in organized scientific reclamation of wool and cotton wastes, what fifty years of ordinary development could not have done. The vital importance of nation-wide conservation was brought home to the country particularly at the time when a wool famine stared producers in the face.

WORK AT HOME AND ABROAD

The story of the growth of the American salvage idea in 1918 presents itself in two general divisions and in two special phases thereunder. One division deals with the accomplishments abroad, the other at home. One phase traces the effects of reclaiming material things in general and one affects the material interests of the textile industries alone.

To the textile manufacturer the main matter of interest is less in the extent to which army rags were collected and graded than in the fact that out of the start made on the field of battle toward the salvaging of materials needed by the Government in the prosecuting of the war there is established a permanent waste reclamation service. As the result of the showing made the activities are to be taken over at once by the Department of Commerce.

WONDERS BACK OF BATTLE LINE

In years to come it is possible that the salvage section of the American forces abroad will be one of the most wonderful recollections of the American energies expended in the task of whipping Germany. Even today before peace has been actually established, the works of the salvage squads, companies and depots are regarded as a commercial wonder and a triumph of useful saving out of the very jaws of wasteful war. The salvage service had nearly a score of special depots, large and small, comprising a working space of nearly a million square feet. One of the largest of the single stations was a factory on the outskirts of Tours, which occupied 240,000 sq. ft. of floor space, and employed 7,000 persons. Two kinds of salvage, known respectively as battle and normal salvage, were collected and brought to these depots. From the zone of the fighting principally, came clothing, shoes and metals. From supply depots, training camps, barracks, and shops came other cast-off materials and food refuse. Great dumps of field salvage were piled high close to the fighting lines, where the collections of coats, blankets, and similar impedimenta were the heaviest, and loads from these were carried back to the factories by trains and motor trucks. Much of this material was re-vamped, patched, cleaned and put out to its original uses again. Ten thousand army blankets would go through a reclamation shop in a day, ten to fifteen thousand pairs of socks might be repaired in one of the largest establishments in a single day. In February the articles reclaimed would have been covered by a value of $5,000, while in August the total amounts in one unit to nearly $3,500,000, official reports show. The army even saved much of the soap that it used in France, making it out of fats reduced from its own food waste. Field laundries washed the linen of base hospitals with it and the doughboys scrubbed themselves with it in some of those frequent baths which so astonished their French comrades.

In an announcement antedating the armistice by only a few days, the Reclamation Division of the Quartermaster's Department changed its name so as to be known in the future as the Salvage Division. The ingenuities of American underwear. More work on textile saving was also done in very complete repair shops in Paris.

In announcing the Salvage Service as a permanent institution, the War Industries Board recently issued a bulletin in part as follows:

"The War Prison Labor and National Waste-Reclamation Section of the Labor Division was organized Sept. 26, 1917, by Mr. Hugh Frayne, member of the War Industries Board and chairman of the Labor Division, at a time when it was apparent that, in order to meet the unprecedented demands for raw materials, unusual economies would have to be put into effect and extraordinary measures taken to salvage material which, previous to that time, had been allowed to go to waste.

As it started originally there were

THE EIGHT DEPARTMENTS

United States Army.
United States Navy.
United States Department of Labor.
United States Department of Commerce.
United States Department of Agriculture.
Federal Board for Vocational Education.
American Federation of Labor.
National Committee on Prisons and Prison Labor.

"Each and every one of these units had a special function to perform, as well as to perform special work as a unified joint body in connection with the general program of reclamation.

CO-OPERATING ORGANIZATIONS

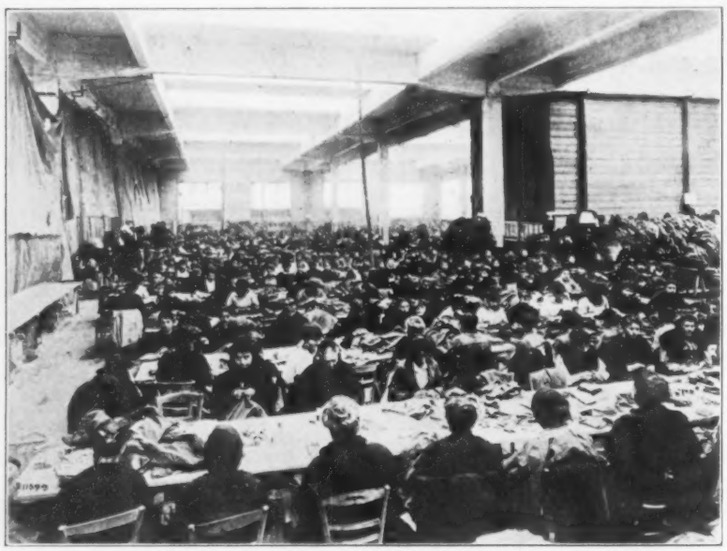
"For the purposes of nation-wide organization, the following National Organizations are pledged through their Chief Executives as co-operating bodies and guaranteed the co-operation of their local chapters and branches throughout the United States:

Council of National Defense.
American Federation of Labor.
American Red Cross.
National Y. M. C. A.
National Catholic War Council.
Jewish Welfare Board.
Federal Board of Farm Organization.
Farmers' National Headquarters.
National Council of Women.
National Committee on Prisons and Prison Labor.

"At the time the armistice was signed local reclamation councils had been formed in eighty-six (86) cities of the country, and two hundred (200) others were in process of formation, destined to make an endless chain involving the assistance of civic and fraternal organizations as well as school children. Many cities went to the extent of organizing and many are planning to organize, permanent municipal bureaus to collect and reclaim all waste materials just as garbage and ashes are collected.

Copyright by Committee on Public Information

PILE OF SALVAGED CLOTHING AT FRENCH WAREHOUSE



Copyright by Committee on Public Information

FRENCH WOMEN REPAIRING SALVAGED UNIFORMS

"This tremendous network of organization it is proposed to have the section continue to use after it has been taken over by the Department of Commerce, with the idea in view always of extending the work to the end of conserving materials for peace-time industries. Practically the entire personnel of the section will be taken over in order that there may be no interruption in the policy laid down for the work underway. Mr. J. D. Jones, now executive secretary, will be chief of the section. Mr. Frayne will continue his connection in an advisory capacity. From every part of the country have come demands that the waste reclamation work be continued, men in all industries being especially enthusiastic over the possibilities for the future.

YEAR'S ESTIMATES OF MATERIALS

"The Waste Trade Board, estimating the values of the waste materials reclaimed during the year by principal items, has compiled the following summary:

Scrap iron	$600,000,000
Scrap metal	300,000,000
Old waste paper and other rags	200,000,000
Woolen rags	75,000,000
Cotton and wool waste	100,000,000
Old rubber	300,000,000
Second hand bags	25,000,000
Cotton linters	50,000,000

"As an illustration to show what can be accomplished through a well-regulated system of waste reclamation, the Reclamation Division of the Quarter-

(*Continued on page 299*)

Important Business Readjustment Problems

Government Could Have Helped "As a Man Thinketh, So Is He"

By *Alvin Hunsicker, Vice-President and General Manager, The Standard Oil Cloth Co.*

NO law can be broken without paying the penalty. One of the basic laws of commerce is that of supply and demand. Normally, supply follows the demand. From August, 1914, to November, 1918, due to the world war, there was an abnormal demand for raw materials and manufactured articles for war purposes. This abnormal demand resulted in inflation and over-expansion. Suddenly the abnormal demand ceases. Orders are held up or canceled. Business seems to be temporarily paralyzed.

Business men for the present appear to be afraid to go ahead. Raw materials and commodities are expected to run off in price. The buying public not only expects it, but almost demands it. In the meantime, there is a strong effort to unload what is in stock without purchasing anything new not absolutely necessary at present values.

War work has practically ceased. So-called essential industries with few exceptions are faced with practically no business, or at least with greatly restricted business. Non-essential industries have been so badly hit that it will take them some months to get back to anything like normal conditions.

Labor for a time is also facing a certain amount of liquidation. This condition of business is the reaction from abnormal activity, and is consequently only temporary. Therefore, both labor and industry are temporarily badly disorganized.

SHALL BUSINESS SHIFT FOR ITSELF

Everybody was willing to help the Government win the war and many made great sacrifices that the war might be won. The Government mobilized business in order to help win the war. The question now arises what shall be done to temporarily stabilize business and how may the Government assist, if it is to assist at all? Shall business try to assume normal conditions gradually or shall it come down abruptly with consequent disturbance and loss? The American manufacturer ordinarily is resourceful and quick to act, but is not the present situation one that is quite out of the ordinary?

To help win the war the Government ignored certain Federal statutes. The Clayton act, for instance, became a joke. New laws were enacted giving the President practically unlimited power. He used it. The war will not be over until the Peace Terms are drawn and accepted. That may take six months. Should not the President and the different Governmental departments use the great power granted them to help, during the immediate future, to formulate peace business as they did war business? If so, then some things should be done at this time that ordinarily would be regarded as unnecessary and out of the general line of American business practice. Is business during the early readjustment months to be helped or is it to be left to shift for itself? The Government, on account of its needs, helped up to a certain point in no uncertain manner to educate the business public that there was no top to values, and should it now so conduct its affairs that its attitude may not be taken to signify that there is no such thing as a bottom? We, as business men, realize that the United States owed it to civilization to help win the war and the end justified the means, but does not the Government now owe to labor and industry the consideration that is due because each did its part so nobly?

TEMPORARILY OUT OF BUSINESS

What are some of the vital problems that face the American business man today?

First. With the exception of a few lines, he finds that he is temporarily practically out of business. His customers seem to believe that while it has taken four years and three months to reach the top, it will take no more than three months without the four years to reach the bottom. The country has been working on a war basis. The Government has been the big customer. Suddenly the orders of the Government are held up or canceled. Intimation is made that unless an iron-bound contract has been executed, there will be no redress. It would seem in the circumstances that the Government, the big customer, should have tapered off its business more gradually. The essential industry should have been let down more easily and the non-essential industry should have been helped in as it was helped out.

GOVERNMENT PRICE STABILIZATION

Second. On account of the great volume of Government business, inventories of raw materials in some instances are unreasonably large and held at top prices. It is true that prices on some products have been regulated by the Government and to a certain extent further inflation was checked, but even the regulated price is so far above the normal that it is apparent that a certain amount of liquidation must take place. If the Government, through its needs, was responsible for advanced prices and for regulating some prices as a war-time measure, why should it not use its great influence, for a time at least, to adjust the price of materials so that values may adjust themselves more slowly to a normal or peace basis? If the sudden rise in price necessitated a fixed maximum price, why should not on a threatened sudden declining market a minimum price be fixed as well, assuming that it might be deemed necessary? If certain staples were gradually reduced with both a maximum and a minimum price and readjustments at short intervals were made, a lot of loss would be obviated and the confidence of the business public would be retained.

THE LABOR SITUATION

Third. There has been a great shortage of labor and wages have been very high. The Government, however, or Government contractors, have been largely responsible. Suddenly the Government suspends production or cancels its contracts and a large amount of labor for the time being is about to be thrown on the market. Both so-called essential and non-essential industries under present conditions, for a time at least, can do with less labor. Living is high and, while there may be no disposition to cut the price of labor, there must necessarily under these conditions during the readjustment period be a less amount of labor required and consequently in the aggregate a large number of men will be temporarily laid off. Unless something can be done to liquidate labor more slowly we may face strikes and eventually probably worse conditions, for the laboring man, as a rule, does not always understand fundamental conditions. He should be shown, intelligently led, not arbitrarily driven. Government employment agencies may assist temporarily, but we doubt the wisdom and the efficacy of any such plan in liquidating labor. The law of supply and demand obtains in labor as in all things, and while it may not be a commodity, labor competes in the open market. It buys and sells its own product. If Government and general public work is to be stopped, it goes without saying that a certain amount of labor will not be necessary, for many industries will not be in position to employ labor in large volume until business is readjusted. Therefore it would seem that Government work, at least in some directions, should not be stopped too abruptly on account of the labor situation. A drastic cut in wages with present cost of living would be a mistake.

TAX BURDEN SHOULD BE LIGHTENED

Fourth. In some industries large profits were made out of war business. In others no profit was made because the product of these industries was not needed for war business. In the immediate future it looks as if there would be little profit for anyone, and in a few months business men will face largely increased tax bills. It is unfortunate that the new revenue bill has not been framed. In any event, however, taxation will be heavy. Since the war is over, or practically so, the question arises as to whether the tax laws should be drastic or whether the taxes on industry should be more moderate and spread over a longer period of time. Take, for instance, two or three years rather than one year to raise for this year what a few months ago seemed to be necessary. If taxes are to be very heavy on this year's business, then it would seem that some provision should be made to make partial payments, for during the reconstruction period it will be difficult to raise the money, and unless some such plan is followed it may mean failure and ruin to many. If in the new Revenue Law taxes were placed lower than the business world expects it would make it easier to adjust the proposed canceled war orders.

AN EASY MONEY MARKET ESSENTIAL

Fifth. Many manufacturers have been forced to borrow considerable money. Rates have been kept down. If credit is to be contracted and the rates of money raised there will be trouble. The Government, in every reasonable way, should put the banks in position to help business and not compel them to hinder it by calling loans.

DANGER OF SUDDEN LIQUIDATION

Sixth. There is great danger in too sudden liquidation. Some business men believe the first loss is the best. Unfortunately many of them form their own idea as to what the first loss should be and often take it when it is unnecessary. Getting from under and selling below cost is a bad practice. It undermines confidence. It brings to many unnecessary loss. There should be at the present time a campaign of educa- told that while ultimately there will be liquidation, it is not going to be a sudden liquidation; that while raw materials will be lower, they are not going to be lower all at once.

Waste Elimination in War and Peace

What the Conservation Division of the War Industries Board Did for Industry

(By Our Washington Staff Correspondent)

"DO you think from the lessons that we have learned from the war that anything permanent will be accomplished in the way of eliminating waste," was asked of A. W. Shaw, former chief of the Conservation Division of the War Industries Board.

Copyright by Harris & Ewing
A. W. SHAW

"Little permanent will come out of it in the way of economies," he replied and continued; "Some of these things will probably be permanent and some of them will live for a number of years. One thing we have changed and that is the fundamental policy of American business. It is not in the United States alone but in all the world and it is necessary for us in a competitive way to watch this because the wider you extend this line the more you increase your cost. No question about that." Continuing along this line, Mr. Shaw said:

"The lesson is this. Take for instance the textile industry—what we were doing during the war in the textile industry was to make it possible to perform the function of the industry to manufacture clothing in the final form it was to be used, the manufacture of fabrics being the intermediate stage. What we proposed to do was to have the clothes needed by the people made with the least possible expenditure of capital, labor, material, equipment, etc. I

(*Continued on page 297*)

Financial Reconstruction in World Markets

United States Holds Master-Key to Foreign Exchange Market—Ensures Commanding Position in World Commerce

By *Paul Warburg, Former Member Federal Reserve Board*

AS I look through the telescope into the period following that of transition I see a United States to which the world at large will be heavily indebted, and to which annually hundreds of millions of dollars will be due as interest on loans extended, in addition to the hundreds of millions due in payment of the raw materials we shall be able to spare for other countries. I see an industrially highly developed country which, with the exception of a limited number of articles will be capable of producing most of the necessaries of life for the consumption of its own people.

I perceive, therefore, a country amply protected by a vast, annual international credit balance, a country which by keeping some portion of its foreign security holdings in the form of reasonably short obligations, should be able to protect itself against any serious encroachment upon this creditor position; a country owning a huge gold stock—a country, in short, which need not give itself any great concern with regard to the task of maintaining the parity of the dollar exchange all over the world.

NEW YORK A WORLD EXCHANGE CENTER

I much misread the future if it does not have in store for New York the position of a world exchange center, vying with London as a free gold and discount market. As I see it, our future economic position will be of such strength that it will be difficult for many countries to keep their exchanges at par with us. They are not likely to have sufficient quantities of the goods required by us, nor will they have large amounts of gold to spare, and therefore, in payment of the things we sell them and of the interest they will have to pay us, they will have to try to find something else than goods that we may purchase from them—that is, they will offer us the individual or collective obligations of their nationals, or their industrial enterprises, or such securities or assets of other countries as they control. If we want these countries to continue to be able to buy our goods, it is therefore incumbent upon us to prepare ourselves to grant these foreign credits and to buy and assimilate these foreign assets.

A BILLION DOLLARS IN AMERICAN ACCEPTANCES

In order to carry out this program several things are necessary. First, our banks and bankers must be able and willing freely to extend their acceptances for the financing of the world's trade. It is inevitable, if our banks and bankers continue to show the same spirit of enterprise and patriotism they have demonstrated during the war, that in the financing of the world's current trade we shall have a very large share. As a matter of fact, we owe it to the world to bear a substantial portion of this burden. To that end the discount rates of the Federal Reserve banks and the policy of the Federal Reserve Board with respect to acceptance transactions must continue to be liberal. I can well foresee the time when American dollar acceptances will be outstanding to the extent of more than one billion dollars in credits granted all over the globe.

While it is most satisfactory to note that several discount companies and acceptance corporations have been organized, it is my belief that the future will show a very distinct need for a larger number of acceptance corporations.

Bankers' acceptances cannot be expected to offer the proper medium for settling a vast permanent indebtedness to us. These large balances must be offset by an outright transfer to us of foreign assets. This may be brought about essentially in four ways:

(1) The debtor country may sell to our Government its own Government obligations. (Our Government in turn financing itself by the sale of United States Government bonds substantially in the same manner as adopted in financing our Allies during the war.)

Or

(2) The debtor country may sell to our investors (instead of to our Government):

(*a*) Its own Government obligations, or

(*b*) Industrial stocks or bonds originating within its own boundaries, or

(*c*) Stocks or bonds owned by it, but issued in other foreign countries.

The first method is not likely to be employed extensively beyond the beginning of the transition period. The other three methods are the ones that in the long run we may expect to see develop as the most practicable forms and for which we must prepare ourselves.

A LIBERAL EDUCATION IN FOREIGN INVESTMENTS

In order to bring about in the United States the successful absorption on a large scale of foreign securities it is necessary that our investing public be educated properly to appreciate these foreign investments. That will only be possible as our banks and our business men going into foreign countries bring back to the "folks at home" frank and reliable information concerning the risks and chances of the proposed investment, concerning the resources of such countries, the character of their people and their political and economic conditions.

In going into these new fields of foreign investment and trade, let us start out with a generous, sympathetic and receptive mind; with open purses, but also with open eyes and conscious of our serious responsibilities in the matter. It is unfortunately true that wherever the faithful pioneer goes, there also migrates the crook. In opening the markets to foreign financing almost every country falls victim to the occasional robberies perpetrated by reckless promoters. The local knowledge of American business men and bankers living in these foreign countries may prove an invaluable protection in scrutinizing these propositions.

I believe that for the better protection of both the public and the careful and self-respecting banker it would be advisable to establish some generally accepted rules governing the information to be contained in a prospectus offering for sale foreign securities.

I can well imagine that by common and voluntary agreement some sort of a future capital issues committee might be organized in each Federal Reserve district to give its stamp of approval to every prospectus before the quotation on the stock exchange be granted or the offer be made. Such approval would not signify the passing upon the intrinsic merit of the security involved, but it would give assurance that all essential facts, and nothing but authentic information, be contained in the prospectus and that they be stated over the signature of the borrowing government or corporation and the issuing house.

In sketching his program for the future we cannot be unmindful that, in certain important respects it will not meet our immediate needs, because it will take time to develop in the United States as wide a market for foreign securities as is here contemplated, while most urgent demands by foreign nations are near at hand.

LARGE EXPORTS ARE CERTAIN

It is at this point of our consideration, however, that our ship strikes a fog bank and that we shall have to feel our way in the night as best we can. We do not know whether during the transition period Congress is going to authorize advances by the United States to foreign countries in order to provide the means with which to pay us for their purchases of foodstuffs or other necessaries. If the Government is not going to finance the sale of these goods the volume of such foreign purchases is likely to be reduced or at least delayed so as to synchronize with the amounts of dollars that can be raised here by the opening of temporary banking credits, or by the free sale in our market of foreign government bonds or foreign assets.

We may take it for granted that, should our Government cease to make advances to our allies, some of them are most likely to offer for sale in our market their own Government bonds or notes, or their industrial properties. I feel certain that vast amounts of the obligations of our strong friends will find a cordial reception here and will be readily absorbed; but taking it all in all it appears extremely doubtful whether our investment houses will find it possible to place foreign securities on a broad enough scale to meet the large foreign requirements for our goods. The task will be made all the more difficult, because as some of these countries just have passed through a period of unrest and great financial strain, we may expect the investor to insist on some evidence that new political conditions have come to stay and that he may rely on an undisturbed economic development before he risks his money.

EXPORT TRADE CRYSTALIZES AROUND FOREIGN INVESTMENTS

On the other hand this period may offer great opportunities for the acquisition of most valuable foreign properties. Some, particularly those with strong credit, might possibly prefer sooner or later to dispose of some of their national securities or assets rather than to increase their indebtedness to us by the acceptance of further loans; other countries may have to sell in order to pay their debts because their national credit has been destroyed. From the business point of view it would obviously be to our advantage to buy assets of this sort (or, as the case may be, to make advances secured by such assets with an option to buy them) instead of taking an unsecured long term foreign government obligation.

It is evident why, in the long run, it is more desirable for the United States to acquire the electric light and power plants, telegraph and telephone lines, railroads, mines, or other industrial plants, than to advance to others the money with which to carry these properties; for whoever owns and controls these foreign properties is most likely to secure for his nationals the orders for raw material and manufactured articles that go with the upkeep and development of these properties. Regular orders of this nature have shown themselves to be a most valuable nucleus around which further business crystallizes.

A PEACE FINANCE CORPORATION

We shall therefore soon be driven into a position of great importance in international finance, and this responsibility will be facing us long before we may expect to see our market for foreign securities develop far enough adequately to meet the situation. I believe that so-called "investment trusts" will ultimately play an important role in solving this problem. Companies of that character are well known in England, particularly in Scotland.

In these circumstances it occurred to me some time ago that by converting the War Finance Corporation into a Peace Finance Corporation and authorizing it, to acquire directly, or make advances on foreign securities, we might create an instrument that would promote our foreign trade and at the same time greatly assist foreign nations in need of our support during a period of political and economic transition. Such Peace Finance Corporation, enjoying the prestige and strength flowing from the $500,000,000 capital subscribed by the United States, could exercise effectively its power, within certain limits, and for a limited number of years, to issue its own obligations against the foreign securities required.

For the sake of both our domestic and our foreign problems, I believe a plan of this kind is deserving of our most careful consideration, even though I am reluctant to suggest it because of my strong belief that at this time we should remove rather than construct war emergency machinery that draws Government into business and on account of other serious valid objections which at once occur to us.

The greatest difficulty, and one that cannot be weighed too conscientiously, is that of devising a plan which will provide a sufficient assurance that we may rely on securing men able, expert and independent enough to be entrusted with the administration of funds amounting to possibly billions of dollars, men who would have to be vested with wide powers in dealing with what, in effect, would amount to the people's money. A solution might be found by providing that the Peace Finance Corporation should be administered by a Board of Directors, of whom one each, with the approval of the President, would be designated by the Secretary of State, the Secretary of the Treasury, the Secretary of Commerce, the Federal Reserve Board, the War Industries Board, the War Trade Board, the Shipping Board and the Food Administration (each selecting at the same time a substitute director for their appointee).

Whatever form of financing, how-

(*Continued on page 299*)

TYPICAL "STORAGE" SPACE OF COTTON AT SOUTHERN INTERIOR POINT WHILE WAITING FOR TRANSPORTATION BY RIVER STEAMBOAT TO "RECOMPRESSION" CENTER. MOST OF THE BALES SEEN ARE OF THE "PLANTATION" VARIETY SO LOOSELY COMPRESSED THAT THEY READILY ABSORB MOISTURE AND ACCUMULATE DIRT.

Economics of High Density Cotton Compression

A Description of Present Compression Methods
A Brief History of the High Density Movement

By *Richard Hoadley Tingley*

IN spite of the intensive campaign for better methods of handling cotton that has been going on for the past year or more the crop of 1918, consisting of approximately 12,000,000 bales, has been ginned, baled, covered, compressed, sampled and transported according to the old-fashioned, time-honored customs of our fathers.

That these archaic methods are unworthy of our boasted American efficiency is a fact well known to all engaged in the industry. That the cotton bale produced is a scandal and a disgrace is also a fact too well known to bear dwelling upon.

Robert P. Skinner, U. S. Consul General at London, England, says, in a report dated September 18th, 1917: "It is conceded beyond question that the American baling methods are the worst in the world". This is the view of British spinners; a view concurred in most heartily by every cotton spinner in the United States.

RAILROAD OPPOSITION TO CHANGE IN COTTON HANDLING PRACTICES

The past ten or fifteen years have witnessed may abortive attempts to introduce scientific, up-to-date methods in baling cotton. The conditions brought about by war seemed to demand that, as an economic measure, cotton handling practices should be changed. But the exigences of war failed just as signally to produce results as the ordinary demands of business had failed. The cotton carrying railroads stand in the way, as they have stood in the way all along, and will not permit any change from previous practices. Reform methods of handling cotton would cut into railroad profits and they will not consent to this. They say they are entitled to receive "about so much money" for handling a seasons crop and are going to see that they get it. This condition has been strong enough to obtain and hold in spite of the fact that the United States Government has been running the railroads for a year.

It remains to be seen, then, what the exigences of peace have in store for the raw cotton industry; whether ancient and out-of-date practices are to continue to penalize the handling of the second largest agricultural product of the country or whether, by concerted effort, the industry can be brought up to the high level of efficiency to which its commercial importance entitles it.

It seems proper, then, at this time and between seasons, to analyze some of the features of present methods that are so glaringly out of joint; to point out some of the most evident remedies that might be applied, and to review the work of the past year or more in this direction in order that it may be more clearly understood how to proceed to lift this important industry out of the ranks of the slip-shod and slovenly and place it where it belongs.

PRESENT METHODS DESCRIBED

Briefly stated, raw cotton is, at present, loosely compressed at the gin into what is known as the "Plantation" bale of density of about 12 pounds to the cubic foot. There are approximately 24,000 ginneries in operation in the South and the average product of each gin is, therefore, 500 bales a year. This average is, however, by no means equally distributed. Only about 25 or 30 of the plantation bales can be loaded into a standard 36 foot box car and, at this rate of loading, are transported to the nearest town for sale. Having been freely sampled by cutting the already shabby bagging, and sold, the bale undergoes another compression to a density of about 22 pounds to the cubic foot. This is known as the "Recompressed" bale and will load from 60 to 65 into a standard 36 foot car.

If consigned to the North, direct, the recompressed bale moves forward by rail to its destination. If consigned North by coastwise steamer, or for export, it moves by rail or by river steamer to the nearest port where as many bales as there is capacity for treating receive a third degree of compression to a density of from 32 to 35 pounds per cubic foot. This is called the "High Density" bale and will load from 100 to 150 bales into a standard car.

A limited number of high density compresses are now located at interior recompression points and a limited number of high density bales now find their way North by rail. It is the recompressed, low density bale, however, that is more in evidence in the yards of the northern mills than any other.

At each ginnery there is a press that will squeeze the raw cotton into the conventional plantation bale.

There are about 300 heavy presses installed and working that can convert a plantation bale into a recompressed bale. There are at present about 58 presses installed that can transform the recompressed bale into a high density bale.

In transporting the bales from the gin to the recompress points in inadequately loaded cars, and again from the recompress centres to the ports and to the northern mills, also in cars inadequately loaded; in the delays consequent upon such triple handling; in the damage resulting to the fibre by reason of exposure due to improper storage facilities at concentration and other points, and by reason of the continuance of wasteful sampling practices, an enormous economic loss occurs every year in the cotton crop; a loss that might be, in a very large measure, avoided. Furthermore, a bale might be produced that would cease to be a scandal at home and abroad, and hold the foreign market against competition.

HIGH DENSITY BALING METHODS

There are two methods by which it is perfectly feasible, within a comparatively short time and before the 1919 crop is ready to be ginned, to install facilities for compressing the entire cotton crop of any season into high density bales within the 120 days usually occupied in ginning and baling.

It is safe to say that neither of these methods will be put into practice until there is a premium placed upon compressing bales so that a minimum of 100 bales may be loaded into a standard 36 foot box car.

The first and perhaps the simplest method is by installing high density attachments on the 300 or so recompresses already working. These machines are now fairly well distributed geographically, so that a minimum of rail movement of bales to them from the gin and from them to the ports would be required. The economy resulting from such a plan would be of a limited degree only. The universal high density bale would become a fact, but the economic loss due to the multiplicity of handling from gin to press and from press to port would still be in evidence.

The high density attachments that are now available for such installations are the Webb and the Turner. The former consists of side doors that can be attached to any recompress machine, thus holding the sides of the bale from expansion while under compression. The

(*Continued on page* 186)

Cotton Warehousing and Financing

The System Favored by National Association of Equal Value to Producers and Consumers

By *Randall N. Durfee, Chairman Cotton Buying Committee, National Association of Cotton Manufacturers*

AT the eleventh hour of the eleventh day of the eleventh month of the year 1918 with the signing of the armistice the world turned from war to peace. The transition has been much more rapid than was expected. The war has been destroying wealth for four years. The war has been destroying human life for four years. It is unthinkable that after four years of waste there should be such a thing as a glut of either materials or labor.

The problems of business reconstruction in Europe and business readjustment here will require the clearest brains and the keenest judgment to avoid serious mistakes. The War Department is reported to have already cancelled over $2,000,000,000 worth of contracts. These cancellations have caused serious misapprehension, but it is generally believed that the Government will not allow business unjustly to suffer loss when it rallied so patriotically to the call of the country. This readjustment directly affects the cotton industry in all its phases. No single manufacturing industry was more efficient in changing from a peace to a war basis than the textile. No industry of its own volition did better work in promptly supplying the urgent government requirements. With the signing of the armistice this industry finds its best customer gone and civilian demands almost negligible.

AN IMPORTANT READJUSTMENT PROBLEM

The National Association of Cotton Manufacturers for some time has been endeavoring to improve conditions directly affecting its members; they have been actively at work trying to stabilize their industry for war times and for the readjustment period after the war. Considerable progress has already been made, especially in the change of the financing of cotton by the use of banker's and trade acceptances. The use of these acceptances could be greatly increased if a chain of warehouses was available at strategic points.

The building of these warehouses has been urgently advocated by the Association and the construction of the same should no longer be delayed. They would be licensed under the U. S. Warehouse Act, which was passed in August, 1916. The producer, dealer, banker and manufacturer are directly concerned in the warehousing and financing of cotton. Next to gold, cotton is the most valuable asset the United States produces. No commodity receives such poor protection from the time it is picked to the time it reaches the spinner.

WILL AID SELECTION OF COTTON

The operation of a system of cotton warehouses licensed under the U. S. Warehouse Act, issuing an acceptable negotiable receipt carrying on its face the assurance of adequate protection of the cotton it represents, with the warehouse bonded to and supervised by the Federal Government, is sufficient to suggest the possibilities for the improved financial and physical advantages to producers, buyers and manufacturers of cotton. The largest opportunity for mills may be to make use of this warehouse system in effecting a more careful selection of cotton with a view to securing that extreme uniformity of fiber so necessary for the most efficient mill production. The fact is recognized that the output of the mill may be increased materially by a proper selection of cotton. Lack of a superior quality of cotton may result in a loss to the mill, the dealer and the producer.

It is quite essential that proper warehousing facilities be provided at the ports to physically protect the cotton when it arrives from the interior, and before it goes on shipboard. With warehouses at the great textile centres cotton could be moved when transportation was available, and supplies would thus be ready when the mills wanted to buy. These supplies would allow the spinner an opportunity for selections and would thus obviate rejections at the mill. Again this season under the present system these rejections have already assumed rather large proportions. Rejections are a source of expense to all concerned, but seem unavoidable when the spinner has no opportunity of selection.

The opportunity is in the hands of the manufacturer. It is from him that there must come the demand both for quality and uniformity. This demand must be presented to the producer in the form of a premium for quality and uniformity with corresponding discrimination against inferiority. This demand will reach the farmer through the cotton buyer. What is essential is that the farmer be reached.

IMPORTANT FEATURES OF U. S. WAREHOUSE ACT

By the terms of the U. S. Warehouse Act the Secretary of Agriculture is authorized to license warehouses, to inspect warehouses licensed, to define the duties of warehousemen; to make general warehousing investigations, to license competent persons to weigh and classify the cotton stored, to cancel or revoke licenses issued under the act and to exercise general supervision over warehousemen, weighers and classifiers licensed under the act. Warehouses are divided into three classes according to their construction and equipment.

The act is wholly permissive in its nature, as no warehouseman will be licensed except on his own application. The act further specificially provides that, should there be a conflict between the Federal and State laws, the State act shall take precedence. All warehouses coming within the scope of this law should take advantage of the privileges of this act as safeguards are thrown around the cotton so stored, which the cotton interests cannot afford to disregard.

One of the main purposes of the United States Warehouse Act is to provide a form of receipt that will be uniform throughout the country, readily negotiable, and of unquestionable value. This receipt contains the location of the warehouse, date of issue, consecutive number of the receipt, statement to whom the products will be delivered, rate of storage charges, description of the products received, grade or other class of same; statement that the receipt is subject to the rules and regulations of the Act, the fact of the warehouseman's interest in the product if he has any interest, and the signature of the warehouseman or his authorized agent.

The receipt also contains the following: Name of the licensed warehouseman; the designation, if any, of the warehouse; license number of the warehouse; date of expiration of the warehouse license; class of the warehouse; statement whether warehouse is incorporated or unincorporated; number given to each bale; amount of warehouseman's bond; statement whether or not the cotton is insured, and, if insured, to what extent; space in which the length of staple may be stated; the words "not negotiable" "non negotiable" or "negotiable" according to the nature of the receipt; the receipt shall specify a period not exceeding one year for which the cotton is accepted for storage; a negotiable receipt embodies within its terms whether the cotton was classified by a licensed classifier or weighed by a licensed weigher; statement showing to what extent the warehouseman guarantees the weight; class; and a form of endorsement which may be used for showing ownership of and liens, mortgages, or other encumbrances on the cotton covered by the receipt.

LOW INTEREST AND STABILIZED VALUES

These receipts will be uniform throughout the country. The importance of this feature need only to be mentioned to be appreciated. A receipt from a licensed warehouseman in one State should be worth just as much or just as little as a receipt from a licensed warehouseman in another State. These receipts will be of such recognized value as to be readily negotiable at Federal Reserve Banks, and any of the money markets of the world. They will be so desirable as security that they will be readily negotiable and will undoubtedly command a low rate of interest.

Safeguards thrown around the business of the warehouse by the Act will reassure depositors of agricultural products, and by their ability to borrow money at a reasonable rate of interest they will be encouraged to store their products and to place them on the market as demanded. This will surely have a decidedly stabilizing influence on the market which is much to be desired. It will make the warehouse a much more important factor in the selective buying practice and the financial policy of the cotton manufacturer. The receipt issued by warehousemen will be a very complete and definite contract between the warehouseman and the depositor.

The complete rules and regulations together with frequent and thorough inspection will tend to bring about standardization in the methods of storing. This is very important as it would be of great benefit to the country if the warehouse business was standardized in every section.

OF EQUAL VALUE TO FARMER AND MANUFACTURER

The location of the chain of warehouses proposed by the National Association licensed under the above act is distributed through the cotton states, as well as the textile centres, and they will be of value to all interests. These warehouses will offer the farmer in conjunction with others, physical protection not always obtainable, and a negotiable receipt which will be merchantable as a collateral at any bank in his vicinity. He will also be given an opportunity to dispose of his entire crop when he deems it expedient to sell, and allows him to secure the highest market value for the class and staple shown on his receipt. The buyer has the opportunity of securing round lots of uniform staple and grade, and with the receipts he can finance his purchase either through local banks or his correspondents in distant cities as the receipts practically carry the guarantee of the United States Government.

Real savings in transportation costs will result from a comprehensive warehouse system; they will tend to reduce the number of shipments, to distribute the peak load of transportation, and to greatly eliminate cross shipments. These savings will be shared by the dealer and manufacturer.

ADVANTAGE OF LARGER SPOT STOCKS

From the manufacturer's viewpoint the transition from war to peace has made these warehouses an absolute necessity. The cotton textile interests have been recently forced to close their Government orders and have thus been prevented in some cases from using the raw material purchased especially for these contracts. This has obliged them to take what civilian orders were offered, and under the present conditions with trade so stagnant there has been no opportunity to adapt these orders to the quality of cotton on hand. The manufacturer has thus often been forced to fill his requirements with the stock on hand, even although it was not suitable, as there was not time to secure the proper selection from the South. With the licensed warehouses in operation the owner of the raw material would have had the opportunity to sell and the manufacturer to buy just the selection wanted, and the change could have been made with almost no loss to the interests concerned.

Exporters would also make broad use of this system; with the tonnage leaving Boston and New York, and with warehouses within twenty-four hours of same, the cotton mills of Europe would seize the opportunity to practically buy spot cotton with the assurance that cotton could be landed at their mills within ten days from date of purchase. Why the producers of cotton have not seen the added outlet for their product by the use of such warehouses is beyond belief.

WILL STIMULATE USE OF ACCEPTANCES

The proper warehousing of cotton is closely connected with the question of finance. Since the meeting at the Hotel Biltmore, in June, great progress has been made in financing the cotton crop. Already two large discount corporations are being organized in New York and a committee of St. Louis bankers and merchants is at work on a great discount bank in that centre. Two of these organizations are to handle bankers and trade acceptances for all commodities, including cotton. One is being organized to handle cotton acceptances primarily, but will deal in other paper as well. This company has already made its commercial connections in the leading cotton centers of the South, and arrangements will soon be completed for handling the business for the next crop, in which trading has already begun.

The tremendous value of the change in the financing of cotton is no longer a

(*Continued on page* 381)

Supplying the Navy with Textiles

Systematizing Purchases a Great Help to Efficiency in this Department

By Our Washington Correspondent

NEXT to Army purchases, the Navy has purchased more textiles during the past year than any other department of the Government as well as more than any individual. As an evidence of the growth of Navy purchases it is interesting to note that in normal times the Navy spent about $27,000,000 a year on supplies of all kinds, while the high water mark during the war was at the rate of $30,000,000 per DAY.

The Navy's main purchasing office—the Bureau of Supplies and Accounts at Washington—consolidates, as far as possible, all requirements of textile materials for the different Navy Yards, Clothing Factories and Naval Stations. This method is followed in nearly every case although special purchases are made by Supply Officers at the different yards and stations when material is urgently needed for quick delivery.

All materials are covered by standard

Copyright by Clinedinst, Washington, D. C. From Underwood & Underwood, New York

REAR ADMIRAL SAMUEL M'GOWAN, PAYMASTER GENERAL, U. S. N., WHO IS LARGELY RESPONSIBLE FOR A SYSTEM OF DEVELOPING AND PROVIDING FOR EQUIPMENT.

specifications which state explicitly how the material shall be constructed, giving weight, strength, etc. At times different manufacturers offer suggestions regarding these standard specifications, which are always welcomed by the officials.

During the recent shortage and in view of the prices fixed by the Price Fixing Committees of the War Industries Board on many cotton materials, a great portion of the Navy's purchases have been made on f.o.b. mill basis, although previously all materials were delivered at the yard or station designated. In adopting the new basis of f.o.b. mill, it was necessary to modify conditions stated in contracts and on Navy orders as the old method provided for public bills to be prepared at the Navy Yard or station concerned, upon receipt of material. This of course would cause payments on f.o.b. mill contracts to be unduly delayed. The modified forms provide for inspection and acceptance of material on these contracts at mill, and invoices are delivered to the inspector, who forwards them to the Bureau of Supplies and Accounts for preparation of public bills. This manner of procedure effects almost immediate payment.

In all cases the Navy endeavors to purchase direct from mills or from regular trade representatives, although in some cases if the material is required for immediate delivery it is necessary to purchase from jobbers or retailers.

DETAILS OF TEXTILE PURCHASES

In order to give an idea of the purchases of a few of the more important textile commodities for the fiscal year 1918, the following are noted below:

Commodity.	Quantity.	Value.
Uniform cloth.....	7,000,000 yds.	$22,000,000
Blankets	735,000 prs.	5,500,000
Australian domestic and South American wool.....	12,000,000 lbs.	7,500,000
Drills	30,000,000 yds.	7,000,000
Canvas and duck..	10,000,000 yds.	8,000,000
Nainsook	1,736,000 yds.	350,000
Mattress ticking...	2,647,000 yds.	900,000
Leggings	975,000 prs.	800,000
Pillow cases, sheets and sheeting.....	.....	1,500,000
Cotton waste.....	7,200,000 lbs.	900,000
Socks, cotton.....	2,500,000 prs.	1,500,000
Socks, merino.....	1,940,000 prs.	
Socks, heavy.....	423,000 prs.	

Approximately $90,000,000 was spent in the Textile Section of the Bureau of Supplies and Accounts during the fiscal year 1918. This amount of money covered purchases of practically all textile materials.

The above-mentioned purchases were made in accordance with the Navy's time-tried method of purchasing after widest possible competition. However, in some cases, especially as regards heavy duck and some other cotton materials, it was necessary to pool interests with the Army, Allies, etc., and accept allocations made by the War Industries Board. Prices paid on these allocations were those fixed by the Price Fixing Committee and approved by the President of the United States. In view of the great demand for cotton goods, some of the Navy's specifications had to be modified with a view to assisting the greatest possible production and employment of all existing looms.

RAW MATERIAL FOR MANUFACTURE

One of the most effective forms of assistance to contractors has been a plan to provide raw materials. In July, 1917, approximately three million pounds of wool was obtained. The effect upon the market of the price at which wool was offered by the Navy to its cloth contractors was surprising. Although there was no established price control at that time, the action of the Navy helped to stabilize the whole market situation. Manufacturers good-naturedly relate that this wool proved a veritable back-log for them in securing satisfactory prices on raw material. Whenever they sought to obtain options from a dealer in order to bid on Navy business and were quoted unreasonably high prices, they were able to assure the dealer that his wool was not needed, since wool could be obtained from the Navy at a reasonable price. In practically every instance, the Navy's small holdings prevented the price on contractors' options from exceeding the price set by the Navy on its own supply.

The quantity in the Navy's possession was not known to the trade, and this must have been the important factor in the situation. As soon as the trade did come to know of the small quantity of the Navy's supply and the ease with which it could be exhausted, it became necessary for the Navy to arrange for the purchase of adequate stocks to meet all its needs. Twenty-five thousand bales of Australian wool were purchased under favorable conditions arranged with the British Government. Storage was provided in Boston and a complete set of samples was made available in the Bureau of Supplies and Accounts for the inspection and selection of the successful low bidder. It is estimated that the direct saving brought about by this wool purchased amounted to some $1,500,000; but the important factor consists in the actual possession of material with which to clothe the fleet. The success of the Navy with its original small purchase became the basis for joint action by the war agencies in importing foreign wools and in taking over the entire domestic clip. For convenience in administration the Army has handled this entire transaction and there has been the most thorough co-operation in all matters, together with a particularly hearty recognition of the need of first meeting the Navy's demands.

METHOD OF DUCK PURCHASING

Unusually heavy demands for certain numbers and weights of canvas and duck in the fall of 1917 made it necessary for the Navy to go into the market rather heavily. In view of the abnormally high prices prevailing in the commercial market, manufacturers were apparently unwilling to bid. The War Industries Board was requested to provide the Navy with information as to the mills from which the Navy could expect deliveries within a reasonably short time. When this complete list was received, mandatory orders were issued with a provisional price set at the figure which appeared just on the basis of all available data in the hands of the Navy. The receipt of these orders at this provisional price appeared to occasion some concern in the industry and drew forth replies to the effect that the material could not be supplied. The Navy referred these claims of inability to supply to the subcommittee of the War Industries Board. This committee had stated, at the time of furnishing the Navy with the information used, that the capacity of every available loom was known to it. The protest then became one as to price, the industry claiming that the material could be supplied, but that the Navy's price was entirely unreasonable. To this statement the Navy replied with the request for facts and cost figures substantiating the claims for a higher price, assuring the manufacturers of a fair profit over and above manufacturing cost. Owing to the non-receipt of the requested figures, the case lapsed. Subsequently the War Service Committee of the cotton industry accepted for the trade a price practically identical with the provisional price set by the Navy. Not only did this action save money directly for the Navy, but it also served as an anchor for Army and civilian purchases since the canvas mills were obviously unable to explain any material discrepancy to other buyers over and above the price at which the Navy was obtaining canvas.

There is no question but that the indirect benefits from the establishment of this principle were even more worth while to the Navy. To-day many manufacturers recognize the disadvantages to industry from high prices and high profits, particularly with regard to the scale of wages and its relation to the present situation, and frankly admit that what appeared at the time to be a harsh and arbitrary action has in fact been of great benefit to industry. A situation similar to canvas arose with regard to denim. The manufacturer asked approximately 40 cents a yard for the material, was served with a Navy order at approximately 34 cents—a difference of over $120,000 from his quotation—and subsequently admitted the justice of this price by requesting a transfer from the Navy order to a voluntary contract.

SCIENCE OF DISTRIBUTION

"Distribution" may mean much or little to the uninitiated, but in the Navy, as in the Army, it spells success or failure for any system or program of supply. It is not sufficient simply to estimate the needs of the entire service for a given time for any particular supplies or class of materials and to then set about to fill those needs in the shortest time and at the lowest cost to the Government, but such supplies when procured must, especially in time of war, be distributed evenly and systematically, or there could actually result a serious shortage of needed supplies at a critical time in the very shadow of plenty.

The science of distribution as applied to the American Navy was first developed on a big scale in the battle fleet on its world girdling cruise in 1908. It will be recalled that the fleet comprissd sixteen battleships with a total complement of approximately 13,500 men, and distribution as applied to money, provisions, clothing and coal was no small task. This factor played a very important part in the success that attended the efforts of the Fleet Supply Officer, who, by the way, is the present Paymaster General of the Navy, Rear Admiral Samuel McGowan, in keeping the big fleet provisioned and fueled on every leg of its cruise.

It is true, of course, that the work of distribution as applied to the Fleet at that time would not begin to approach either in the size of the task or the diversity of problems involved in the task that fell to the Supply Corps of the Navy in the present war with Germany, but certain fundamental principles were so well established on that cruise and of such general application that they formed in part the basis for building up the present system of supply in the Navy that has worked out so satisfactorily in this war.

One of these principles can be best illustrated by quoting the following extract from the "Report of the Operations of the Pay Department of the Atlantic Fleet on the Cruise Around the World" prepared by Admiral McGowan, the then Fleet Paymaster:

> "The next step along the same line which I had in view but had not reached was a general redistribution of all stowage spaces throughout the ships for the purpose of gaining in accessibility and securing so reasonable an allotment of space as to have all the supplies on board in a business-like proportion to each ship rather than, as has been the case in the past, carrying six months' or a year's or even in some articles two or three years' supply of one thing, and in consequence thereof being obliged to replenish in some other necessary articles every few weeks."

The Army as a Great Textile Purchaser

Necessity for Changing Pre-War Methods to Meet Exigencies of the Situation

THERE has been no time during the history of the textile industry, perhaps, which is comparable with the past year insofar as quantity production is concerned. This was due largely, of course, to the enormous amount of textiles of all kinds which were used by the United States Army; the biggest textile purchaser of any of the Government departments, having to clothe, from head to foot, several millions of men.

At the time of the outbreak of the present war the purchase of clothing was handled by the depot quartermasters under the supervision of the Clothing and Equipage Branch of the Supplies Division, Quartermaster General's office.

Realizing the magnitude of the work of equipping the very largely increased forces, arrangements were made for the purchase of woolen goods, etc., through the committee on supplies of the Council of National Defense. This committee, after investigation, advised the Depot Quartermaster in Philadelphia as to location where articles could be obtained; also prices and rates of delivery. The Depot Quartermaster in Philadelphia then placed the orders direct with the contractors, sending copies of all orders to the Clothing and Equipage Branch, Supplies Division of the Quartermaster General's office.

CONSOLIDATION OF DEPARTMENTS

On January 21, 1918, the committee on supplies, Council of National Defense, and the purchasing and manufacturing office of the Quartermaster Corps were consolidated and the procurement duties of the Clothing and Equipage Branch of the Supplies Division were abolished; the Supply and Equipment Division of the Quartermaster General's office being organized. At the time of its organization the number of employes of the Supply and Equipment Division was sixty-five and the office space occupied about 5,000 square feet. On June 30, the number of employes was 771 and the space occupied in Washington and New York about 65,000 square feet, in addition to considerable storage and office space in Boston and elsewhere required for the operation of the Wool Top and Yarn Branch. On June 1, the name of the division was changed to Clothing and Equipage. With a view of keeping in close touch with the market, the procurement departments of the cotton, woolen and knit goods and the manufacturing branches, together with necessary service branches, were moved to New York about June 1, where they occupy two floors in the Borgfeldt building.

SCOPE OF PURCHASES

It is stated officially that the Cotton Goods Subdivision of the Clothing and Equipage Division has had charge of the procurement of something over 800,000,000 square yards of cotton textiles since the beginning of the war. These textiles included tent duck, duck, venetians, pillow-cases, sheets, towels, jute-burlap, twills, denims, etc.

By the exercise of the import-license option to import wool granted by the War Trade Board, the Quartermaster Corps has, since March 1, taken over certain grades of imported wool, and since May 17, has been exercising the option on all grades of imported wools. On April 25, under the authority of the War Industries Board, the Quartermaster Corps acquired all spot stock in dealers' hands in the United States and was given the right to secure all or any part of the 1918 domestic clip. The War Trade Board later ruled that after July 28 no licenses to import wool from Uruguay, Argentina, or South Africa would be granted except for shipments to the Quartermaster General of the Army.

The great increase in the Army program brought forth the fact early in April, that unless every effort was made to conserve wool and increase importations a serious shortage would result, and the Army would not be able to acquire sufficient wool to clothe and equip the troops. The Quartermaster Corps, by acquiring the right to purchase all the wool in the United States and all the wool imported into the United States (except such wool as the Navy purchased in Australia direct from the British Government), and by controlling the wool supply and alloting no wool except for government purposes, was able to cover the Army's woolen requirements up to the first of January. During the early part of the year 1919 a shortage of wool to continue the 1919 program would probably have developed unless the amount of shipping available for wool importations could have been increased. Every effort, however, was being made to arrange for the necessary shipping to import wool when the armistice was signed.

By an increase, just before the armistice was signed, in the program, requirements more than double the yardage of 20-ounce melton for service coats and breeches was called for. To handle this increase immediate steps were taken to increase the number of looms operating on Government fabrics. A thorough canvass was made of the entire woolen industry of the country to determine its availability and productive possibility. In this investigation valuable assistance was rendered by the trade associations, and there is now on file very definite information about all mills that can produce fabrics suitable for Government use. To systematize the procurement, mills were classified according to the fabric they were best capable of producing and contracts were awarded on that basis.

The available machinery of the woolen industry was amply sufficient to supply the maximum requirements of the Army, the greatest difficulty arising from lack of raw material. Every effort was made to overcome this deficiency, but there was still shortage of the coarser grades for overcoats and blankets.

CHANGES IN SPECIFICATIONS

Certain problems arose in connection with procurement work. First, available supplies of raw material; second, substitution of materials; third, changes in specifications to provide for the use of such materials as were available; fourth, revision of specifications to meet changes in Army requirements. Acting on the advice of a special board of inquiry, called by the Acting Quartermaster General, and composed of a number of experienced manufacturers, and following certain suggestions made by the commander of the American Expeditionary Forces the weight of all the fabrics used for Army purposes was increased, the old weight having proved insufficiently warm for the use of troops in France. This board reported its findings in March, but the increased requirements of the General Staff, combined with the shortage of wool, necessitated a reversion to the original amount of wool substitute in certain fabrics where the strength or durability would not be affected. In all casees an effort was made so to blend the available raw materials so that a satisfactory fabric could be produced.

Careful comparison was made with the wool cloths used by other armies so far as possible and an investigation, based on the examination of the garments returned to the reclamation depots, is now in progress, having in view the determination of the wearing qualities of different cloths.

Officials think it highly desirable that some accurate information be gathered for the use of the Office of the Quartermaster General regarding the wearing qualities of at least the standard specification fabrics recommended by the board of inquiry. There is an opportunity to do this by the identification of fabrics with labels showing the date of contract and cloth manufacturer, as is now done in the blankets so that when the worn out garments reach the reclamation or salvage departments much valuable information could be obtained. Another way would be to clothe entire companies with certain known cloths for test purposes.

CHANGES IN MACHINERY

To secure for the Quartermaster Corps the required supplies of underwear, hosiery, gloves, puttees, and miscellaneous knit goods it was necessary to alter and supplement underwear machinery in many mills which had heretofore made only women's goods or men's union suits, so that they could knit men's undershirts and drawers in sizes needed for the Army. As the country possessed but a small part of the machinery necessary to supply the country with wool hosiery it was found necessary not only to have new knitting machinery made, but to experiment with new yarns from available wools. This resulted in knitting both the light and heavy weight wool hosiery from Bradford-spun instead of French-spun worsted yarns, thus releasing a large product of French-spun worsted yarns to the underwear manufacturers, with a resulting increase of both underwear and hosiery for the military service. The required production of underwear was secured, and the mills were reaching a point where there would have been no shortage in the Government supply, however large the Army might become.

New specifications for winter underwear were prepared and adopted, increasing the percentage of wool from one-third to one-half, keeping the same quality of wool stock as before, but allowing the use of a percentage of wool noils and garnetted worsted (entirely free from shoddy or previously used wool), thereby releasing large stocks of wool fiber used in the best underwear for civilian trade.

Every available machine in the country for making both light and heavy weight hosiery was engaged in Government work at the close of the war. The demands for cotton underwear from March to July were far in excess of the productive capacity of the country. These demands were met by extending contracts to ribbed underwear makers, mostly of women's underwear, for the necessary shirts, and by contracts with muslin-underwear makers for the necessary drawers. By deferring deliveries on civilian contracts large quantities of flat-knitted cotton fabrics were diverted to Government use.

To secure 12,000,000 pairs of wool gloves it was necessary to make changes in specifications and to make purchases from a number of manufacturers with large capacity. Later a canton-flannel leather palm-knit glove was adopted, to be worn over the woolen gloves, one furnishing service and the other warmth.

THE TRANSPORTATION PROBLEM

In order to work out a plan by which supplies should always be available when needed, both in this country and abroad, it was necessary to consider carefully the amount of time required for transportation of supplies from manufacturers to depots, from depots to camps, or from depots to troops abroad. An even more important problem was that of determining the time required to obtain supplies after orders had been placed with factories, and often difficulties have necessarily resulted because of an underestimation of this time or because of delinquencies in factories themselves.

At the beginning of the war it was peculiarly true that factories in certain parts of the country were given contracts for much more than could actually be produced in their territories. The proper allocation of contracts, the determination in advance of the allocation of contracts as to whether raw materials were available for actual manufacture, are matters which had to be worked out in detail. For example, the problem with respect to woolen clothing is not merely the problem of purchase of a supply already existing; it is a problem of determining, first, how many suits are needed and when and where needed; second, of making sure that the wool is available for the manufacturing of such suits—and this has constituted one of the most serious problems; third, the placing of contracts for the obtaining of such uniforms, and fourth, the delivery of the uniforms to the places where they were actually needed. If any one of these items causes difficulty, the whole supply program makes trouble. The problem of obtaining, manufacturing and suppling quartermaster supplies for the Army at home and abroad is therefore tied up with the whole system of national industry and of inland and ocean transportation.

ZONE DISTRIBUTION OF PURCHASING

At the beginning of the war the Quartermaster Corps' purchasing system was largely decentralized, each depot buying more or less independently and supplying posts, forts, etc., in accordance with a published plan. The decentralized system of purchasing necessarily had to be replaced when the Government came to use substantially all of the manufacturing resources of the country. At the beginning of the war some effort to meet this situation was made through the Council of National Defense. The Secretary of War approved a list of articles which were to be purchased exclusively through the Council of National Defense. Purchasing quartermasters were notified that they were not to place any orders for these articles except in case of emer-

(*Continued on page* 343)

Atlantic Heights Housing Development

A Government Project of Wide Adaptability —Unusually Well Rounded Town Plan

By *Kilham & Hopkins, Architects and Town Planners.*

Textile manufacturers who are seeking something in a housing and town plan that is well removed from the bungalow and row types of houses, and that attains every desirable feature of an attractive and desirable town without prohibitive cost, will find the Atlantic Heights development worthy of intimate study. It is one of the most interesting and well rounded of the Government's war housing plans. It has a direct textile interest because of the fact that it houses employes of the Atlantic Corporation, whose organizer and president is Arthur R. Sharp, treasurer of the Sharp Manufacturing Co., New Bedford, and the Hamilton Manufacturing Co., Lowell, Mass.

THE Emergency Fleet Corporation's "Atlantic Heights Development" is being carried out on land adjoining the shipyard of the Atlantic Corporation at Freeman's Point, just above the city of Portsmouth, New Hampshire, on the Piscataqua River. The tract, which is one of great natural beauty, lies about a mile in a direct line from the Portsmouth Railroad Station, between the Portsmouth-Dover line of the Boston & Maine Railroad and the river. If it were located in Flanders it would be considered a position of great military strength, for it is not only elevated, commanding views for miles up and down the river and over the city of Portsmouth, but while the river bank at this point consists of vertical rock bluffs some 40 feet high, the town site is also separated from the "main land" by an equally deep and narrow valley which affords a location for the railroad. This hill top contains about 60 acres of ledgy and undulating land varying from 50 to 80 feet above tide water, and the inequalities of surface not only account for the curving and park-like street plan, but also give rise to several picturesque situations which the architects have been quick to develop.

FEATURES OF TOWN PLAN

The three points which were the determining factors of the town plan were in order; first, the best location for the approach bridge which spans the valley through which the railroad runs; second, a natural transverse depression or swale which would serve to carry the drainage sewer for most of the tract; and third, a picturesque cove, with an old wharf which provides the only landing place on the river bank.

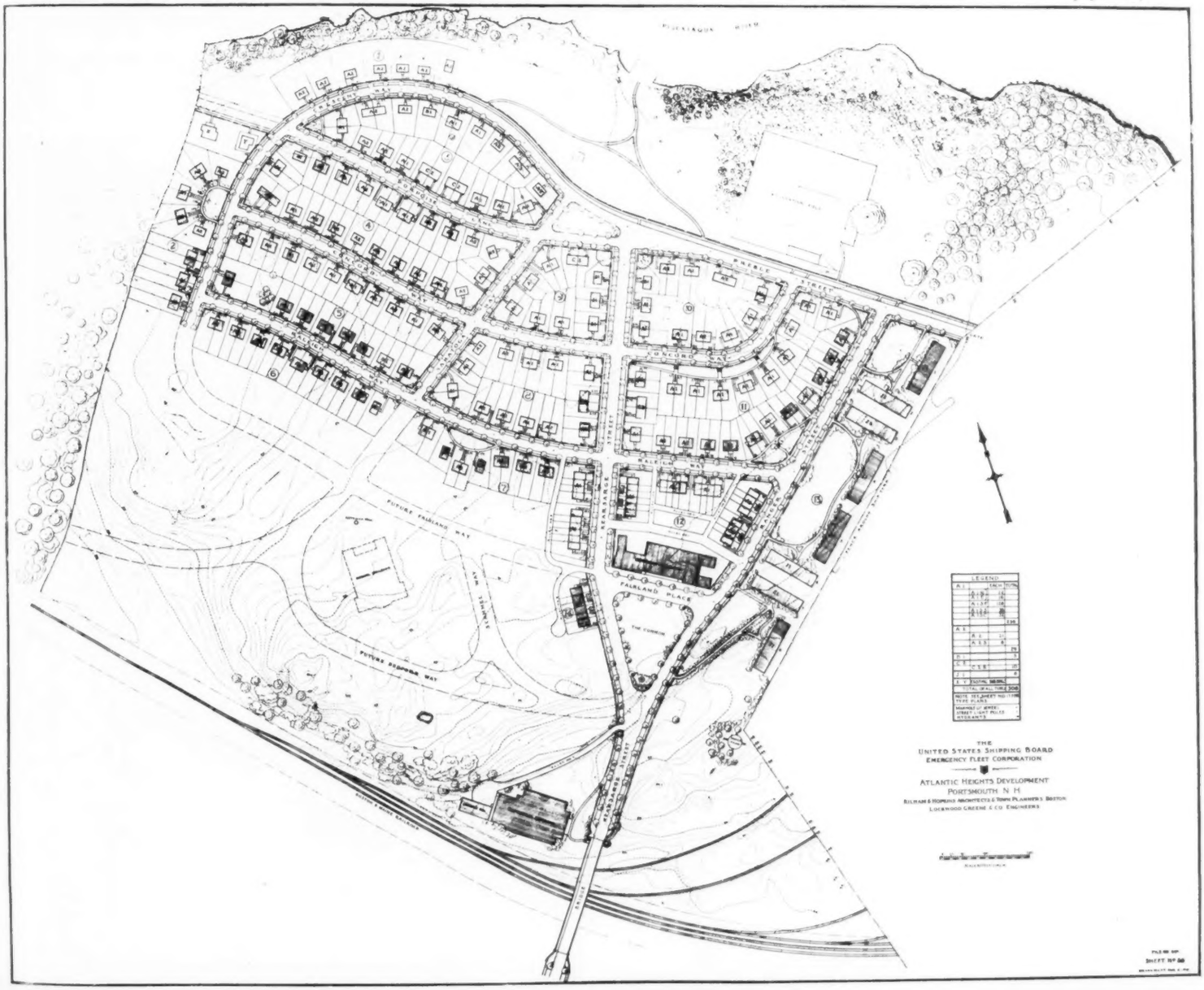
Accordingly Kearsarge street, the main thoroughfare (incidentally the streets are all named for vessels of the Old Navy which were built in Portsmouth) starts from the only available site for the bridge and heads across for the cove about midway of the site. Saratoga street follows the natural drainage valley and joins Kearsarge at a point which affords a striking view over the river and the charming Maine country beyond; while Ranger street, named for John Paul Jones' old ship, diverges diagonally from Kearsarge street just at the bridge leaving between the two streets a typical New England triangular town common, not a plaza or square, but like everything else in Atlantic Heights this little common "just happens" easily and naturally, fitting the contours of the land as if a drawing board had never interposed between its creator's brain and the contractor's workmen.

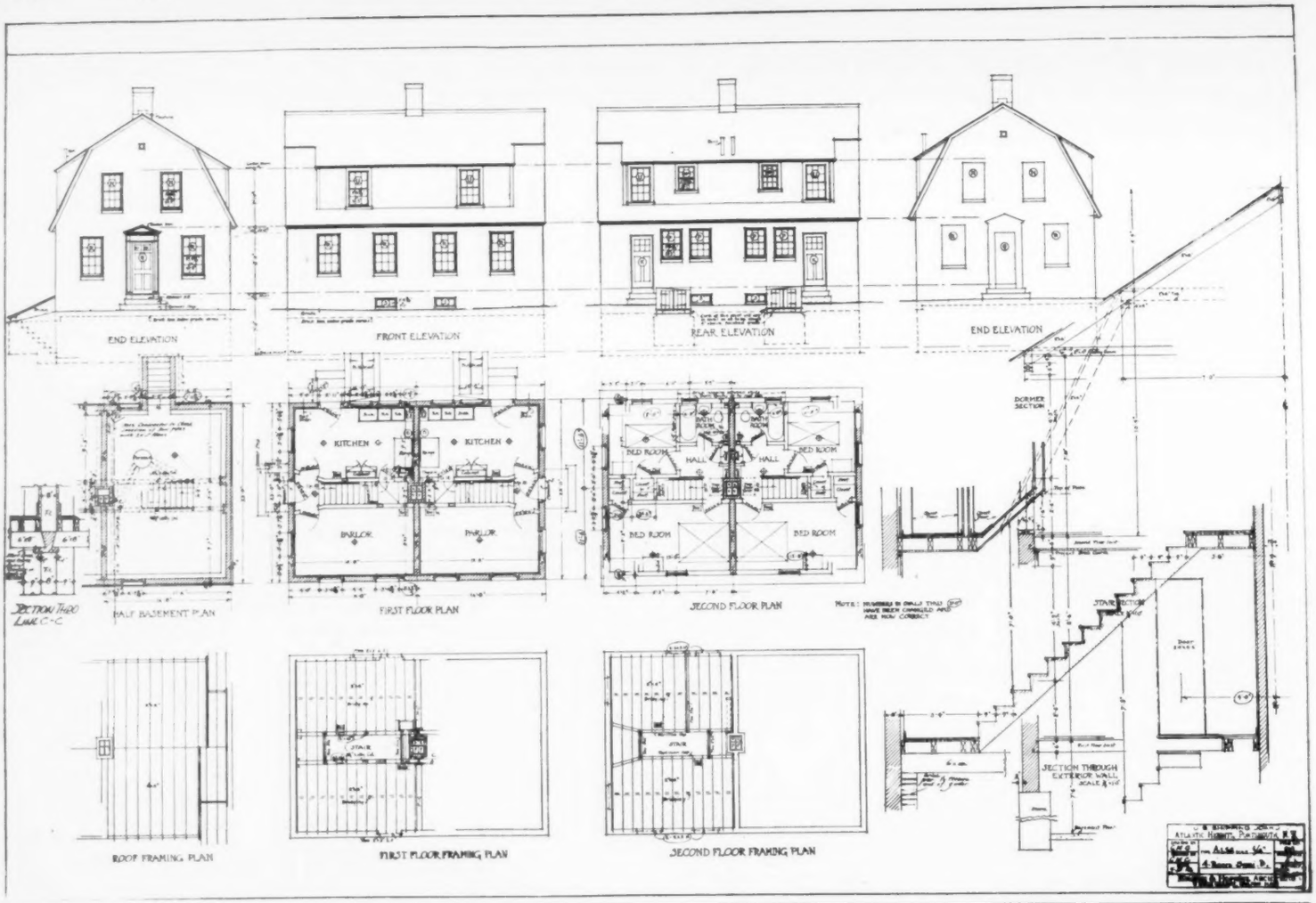
DORMITORIES FOR MEN

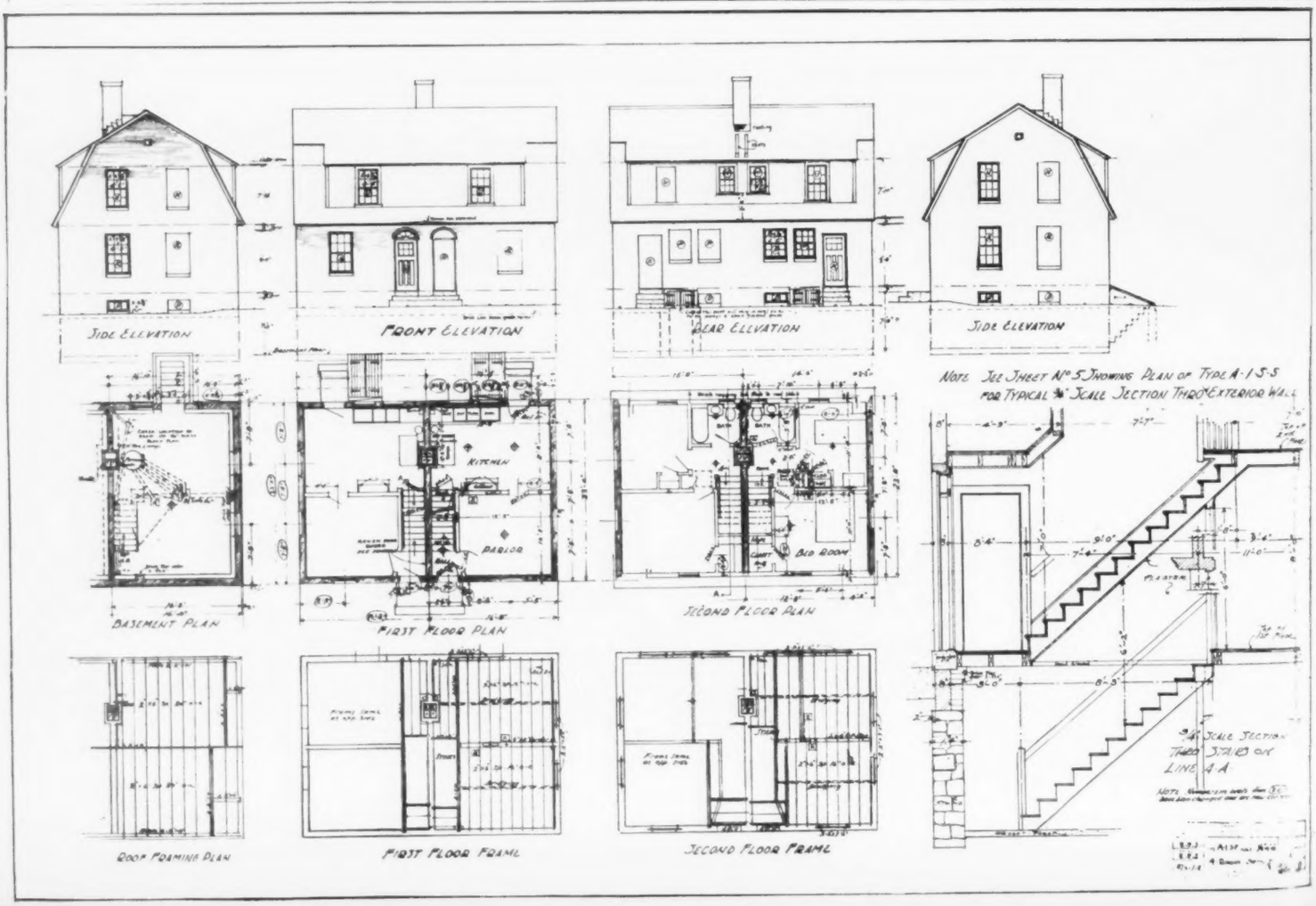
The angle of Ranger street is determined by the line of the shipyard fence, and along this line, nearest the gate, are placed the eight dormitories containing single rooms for fifty men each, arranged with ample park spaces between the buildings. This row of dormitories also serves to screen the dwelling houses from the shipyard plant.

Kearsarge and Saratoga streets have another objective than a view, for just south of the cove is a beautiful stand of pines right on the rocky bluff above

(*Continued on page* 469)




END ELEVATION
FRONT ELEVATION
REAR ELEVATION
END ELEVATION
KITCHEN
KITCHEN
PARLOR
PARLOR
BED ROOM
HALL
HALL
BED ROOM
BED ROOM
BED ROOM
DORMER SECTION
STAIR SECTION
SECTION THROUGH EXTERIOR WALL
SECTION THRO LINE C-C
HALF BASEMENT PLAN
FIRST FLOOR PLAN
SECOND FLOOR PLAN
ROOF FRAMING PLAN
FIRST FLOOR FRAMING PLAN
SECOND FLOOR FRAMING PLAN


SIDE ELEVATION
FRONT ELEVATION
REAR ELEVATION
SIDE ELEVATION
KITCHEN
PARLOR
BED ROOM
BATH
BASEMENT PLAN
FIRST FLOOR PLAN
SECOND FLOOR PLAN
NOTE SEE SHEET No 5 SHOWING PLAN OF TYPE A-1 S-S FOR TYPICAL ¾" SCALE SECTION THRO EXTERIOR WALL
¾" SCALE SECTION THRO STAIRS ON LINE A-A
ROOF FRAMING PLAN
FIRST FLOOR FRAME
SECOND FLOOR FRAME

Lowell Textile in Supporting Trenches

Record of Service in War As Well As in Peace

By *President Charles H. Eames.*

THE title of this article was suggested several months ago when hostilities were at their height and there was no indication of peace. With the signing of the armistice all plans have been changed and we are now looking towards peace and the resumption of former schedules and curriculum, therefore perhaps a more appropriate title would be "The Lowell Textile School *In* the Trenches and *Out*."

The part that this school has played in contributing to the success of the Allied cause can not, like many other factors, be separately measured, but the fact that it has played a part through the personnel of its alumni, instructors and students, and by its contribution of equipment and organization in the plan of the Students' Army Training Corps, is a source of satisfaction to all who are interested in progress that the school is making to aid the industries of this State and the Nation in peace time or war time.

L. T. S. MEN IN SERVICE

With the entry of the United States into the war, many of the alumni sought voluntary enlistment into their chosen branch of the service. So large were the numbers, and so great the variety of choice, that almost every branch finds an L. T. S. man where because of personal qualifications as well as training he has proved his worth and merited his success. They are found on the land, in the air, on the transport and battleship, in the shop to increase the product of munitions, in the mill to stimulate the production and maintain the quality, and in the laboratory developing gas for offensive and perfecting masks for defense. Truly the extensive opportunity for L. T. S. men to utilize the engineering, manufacturing, and chemical training based upon the scientific principles taught at the school has exceeded all expectations of those interested in their progress.

Immediately upon opening of hostilities the demand for mature men with training and experience called many members from the instructing force to the Quartermaster's Department of the Army, and with them followed graduates of that same year. At the end of the following year, every member of the graduating class entered the service in branches where they might use to advantage their technical training.

Of those who sought service in the air, there is record of one who has received his commission and has since been instructing others at one of the flying fields in this country. Another has seen service with the flying squadrons on the Italian front.

The naval service has textile chemists, manufacturers and engineers with commissions of ensign and lieutenant. The artillery branch, field and coast, finds manufacturers and engineers with lieutenants' commissions.

The gas defense service is a branch where textile chemists have sought opportunities for service, and have been rewarded with commissions in several cases. Among the officers who went overseas in the beginning, and who have been there through it all, in the infantry was a graduate from the chemistry and dyeing department. If the varied experience of the L. T. S. men in this war could be written it would be as interesting and stirring as that of any school's alumni and undergraduate record.

The organization of the volunteer units before the establishment of the draft law found many of the undergraduates ready to enlist. In a single battery, F of the 102d Regiment of Heavy Field Artillery, twenty-three enlisted directly from school and have seen much active service in the famous Twenty-sixth Division. Of these men three have been commissioned, one has received the Croix de Guerre, and several have been raised to non-commissioned officers. Following the enlistment of these students, others left school to volunteer or waited until the classes of the school were finished in June, when they, too, went into the service, so that by the middle of summer the service flag of fifty stars to represent only those who went into uniformed service directly from the school did not equal the number of students who left for service.

AFTERNOON DRILL OF L. T. S. BATTALION OF S. A. T. C. ON SCHOOL CAMPUS

DESIGNATED FOR S. A. T. C.

Up to the end of the school year, 1917-1918, the school had only indirectly been of aid in the war, but in its designation by the War Department as a school, which met the requirements for the establishment of a Students' Army Training Corps—Collegiate and Technical School Section, it was evident that it could be, by means of its equipment, plant and organization, of considerable direct assistance in the successful completion of the war for Democracy. During the past summer and early fall all plans were made with the direct object of utilizing to the best and fullest advantage the entire plant and instructing staff as might be required by the committee on education and special training in whose charge the War Department had placed the direction of the Students' Army Training Corps at all educational institutions designated for this work.

Following the direction of the War Department in July last, three undergraduates were selected to go to the Officers' Training School at Plattsburg that they might, upon return to school in October, assist in the military instruction.

BUILDING TRANSFORMED INTO BARRACKS

The plan of the S. A. T. C. contemplated not only the instruction for the student soldiers, but also required provision for their housing and subsistence. An unused second floor of Kitson Hall, one of the school buildings, was readily transformed into a barracks by the addition of a top floor and additional heating. With these changes experienced army officers declared these barracks ideal for the housing of two hundred men. In the extension of the same building, and on the same floor, ample provision was found for kitchen and wash room facilities, and in a con-

(*Continued on page —*)

ASSEMBLY HALL FITTED UP AS STUDY ROOM AND "Y"

NEW STORY OVER COTTON SPINNING DEPT. FITTED UP AS BARRACKS

PORTION OF HANDLOOM DEPT. USED FOR MESS

Textile Cost Accounting

How to Plan Accounts—Mill Forms—Systematizing the Work

By *Grafton Whiting* *

AN investigation of cost accounting in textile plants reveals two different methods in general use. The first, where reports of the mill operations are summarized and reduced to statistical figures—the old method; and the second, where the mill figures form a part of the accounting system—the modern method.

The practice of maintaining statistical costs, independent of the books of accounts, is better than no costs at all, but is far from answering the requirements of present day business. Unproved cost cimpilation is found in many modern plants—modern from the standpoint of equipment—partly because of the fact that the general books and the financial control is frequently maintained in an office located at a distance from the mill, and partly because the vital necessity of proper accounting methods is overlooked. It has been assumed that periodical statements of condition were not only ample but all that could be obtained. At the mill itself, outside of handling the payroll and certain minor items, little or no knowledge of accounting has been considered necessary. The average mill of this type procures a financial statement and a statement of loss and gain but twice a year, and even this is delayed usually from a month to six weeks after the closing period.

The cost data resulting from the summarizing, and statistical figuring method, if analyzed, would reveal many inaccuracies due to a false starting point, and being susceptible to such errors has lost the confidence of the executives whose constant guide it should be. Wide fluctuations in costs from one period to another are an indication that the proper method and control are missing and add to the distrust of the figures as a whole.

HOW TO PLAN THE ACCOUNTS

The planning of a comprehensive cost accounting system should begin with the financial books, and from this point work back through the books of original entry to the operations in the mill. In most instances, the accounts treating with the operations of the mill are best separated into a group by themselves, and recorded in what is generally known as the "works ledger." A controlling account in the private ledger governs and balances the works ledger in such a manner that each may be proved separately. If the accounting is correctly performed, and the books balanced, a proof is afforded that all receipts and expenditures are accounted for in the statements presented. The cost work being an integral part of the works ledger must be correct or cause a failure to balance. A statement drawn from such a plan of the accounts justifies confidence.

The presentation of a statement once each six months leaves too long a period for careful control of mill operations. The plan of accounting should be such that a complete statement can be prepared not later than the tenth of each month.

The statement as presented should show the balance in each of the principal accounts, the loss or gain for the month, and the amount of the expenditures for the period. It is the purpose for a properly constructed cost system to obtain the monthly cost of each count of yarn spun, and the cost of the final product of the mill. To accomplish this the inventory values must be known. The works ledger includes the inventory accounts and by a process of charges and credits—the result of mill reports—there are maintained book inventories under the appropriate headings.

WHAT IS WORK IN PROCESS?

As an illustration: an account with cotton is kept in the works ledger on which is entered the opening inventory and all cotton purchases. An entry of withdrawal is made when the cotton is opened as reported by the mill. The bookkeeping entry is completed by charging the quantities and values of this cotton to the work in process account. To this latter account is also charged the amounts of the payroll and the burden or overhead for the period. Work in process is credited with the value of the product of the mill, at cost, as shown by the cost compilation, and the bookkeeping entry is completed by charging the same product value to "yarn" or "finished product." Like entries are made for yarn or "finished product" and cost of sales.

The above illustration outlines the general principle of inventory control, but in practice the cotton account is divided into a number of accounts, each representing different groups of cotton; the work in process account is divided into departmental accounts and the yarn produced and the finished product is divided into several sub-divisions.

The report of the opening room serves as the basis for entering the cotton into "work in process" in the first department, and when collected for cost accounting, is expressed in pounds as well as values.

The labor expended on the product is also a part of the inventory accounts for, as each operation is performed, the value of the cotton is increased in proportion to the labor expended upon it.

To obtain the amount of this increase in the aggregate for each department, the payroll is analyzed and that portion that can be directly traced as increasing the value, i. e., productive labor, is added to the work in process account for the respective departments. Likewise the mill burden or overhead charges are accumulated as the work progresses. These latter, in turn, are added to the work in process by departments, based on certain predetermined rates.

If we consider that the burden or overhead includes a proper proportion of fixed charges; i. e., depreciation, insurance, taxes, etc., and also the proper share of the cost of supplies, repairs, supervision, and other kindred times, it is clear that the work in process accounts have accumulated all the elements of cost.

The accumulated value in the work in process accounts is reduced each month by the cost value of the product completed, thus leaving only the inventory value of work in process as a remaining balance.

MILL FORMS

COTTON LEDGER.—The forms for properly representing cotton inventory need not be elaborate, unless exceptional care is required in controlling its use. On such forms should appear sufficient information to show the quantities on hand at all times and the values. Once a month the total on hand should be drawn off from the forms and the result proved with the receipts and disbursements of cotton as a whole. The previous inventory with added receipts, and deducted withdrawals, should equal the cotton on hand.

OPENING ROOM REPORT.—Each day the opening room should list the cotton opened, and a form of report made giving the number of bales of each mark, the pounds at opening, and the weight of the hoops, buckles and burlap. From this report the cotton ledger is credited with the amounts of cotton opened. The loss or gain in weight as compared with the invoice weight should be properly noted on the cotton ledger.

DEPARTMENTAL REPORTS.—A weekly production report should be made by each department, showing the output under such headings and groups as necessary for proper cost determination. In the spinning room, for example, the pounds produced by each count of yarn should be grouped by sizes of roving, or other divisions such as combed, carded, warp, or filling. From this data the spinning department account is credited with the value of its product, and the same amount is charged to the next operation. In addition to the production, the spindles utilized on each count should be reported, together with a statement of idle spindles and the reasons for their idleness. This portion of the report is the basis for determining the efficiency of the spinning department for the week. The latter, however, is not a feature of cost accounting, but a task of industrial engineering.

PAYROLL.—The labor entering into the direct production of each department is added to the work in process account for that department. To obtain the proper figures for this entry the payroll should be designed to facilitate analysis. In each department there are two general groups of the employes — non-productive labor and productive labor. By providing a column for entry of the amount of pay to non-productive workers—such as firemen, second hands, sweepers, etc., the sum of their pay may be easily accumulated for charging to the overhead or burden accounts. The total of the productive labor column will then show the charge to the work in process account.

The workers considered as non-productive laborers are usually paid by

(*Continued on page 299*)

* Of Cooley & Marvin Co., Boston.

Room ____ Mill No. ____ Week Ending ____

Occupation	Name	Rate	No.	Amount of Pay	Hours	S M	T	W	T	F	S	Out	Allow	Genl.	Rate

ARRANGEMENT OF PAYROLL PERMITTING DIRECT ANALYSIS

Unprecedented Experiences in Cotton Goods

War's Necessities Create a Measure of Control Thought to Be Impossible

FROM a purely market standpoint, the experience of the cotton goods trade in 1918 will stand forever as a thing to be referred to as the first time that the Government of the United States ever felt called on to lay a restraining or regulating hand on the unrammeled conduct of the market. The story of the year will be incomplete without this great outstanding feature as one of the incidents of the great world war, and one that put shackles on the carefully nursed and fondled law of supply and demand. The published necessity for this drastic upsetting of all precedent was to insure the ultimate consumer against extortion and to enable the United States Government to purchase supplies needed for the prosecution of the war at a relatively reasonable and stable cost. It was frankly admitted by market factors at that time that the inflation of costs was not a thing of their seeking, and that a measure of market stabilization would not be objectionable. The whole fabric of business was very greatly unsettled, and speculation was usurping the place of legitimate trade to the extent that business was skating on thin ice rather than resting on solid ground.

AT THE BEGINNING

The year just past was richer in experience, and, finally, kinder in profits than any other year on record in the cotton goods trade. The year opened with manufacturers in a frame of mind that was not encouraging. The future was without light, full of pitfalls, to men of imagination, and the life-long experience of factors in the trade could discover no panacea for its numerous complaints. The industry was confronted with a shortage of labor, and the problem of power, especially in the South, was of serious proportions. A lack of motive power, due to low water and a scarcity of fuel, was reducing the productive capacity of mills in a way that was getting serious, and plants that were largely dependent on secondary power were forced to curtail production because of their inability to operate on full time. The demand for goods was very active, but selling agents were not in a mood to extend their obligations to meet the desires of buyers.

TRADE TRIMMING SAIL

The trade was evidencing a determination definitely to restrict its long-reach ventures into the future, and to operate more closely within a limit of three months in advance. On Jan. 15 the price for middling cotton on the New York exchange was 32.60c. The quotation on 38½-inch 64x60 print cloths was 12¼ cents; for 36-inch 56x60 4-yard sheeting 16 cents was quoted, and 36-inch 48 square 3-yard sheetings sold at 19¾ cents. A comparison of these figures with those obtaining at this writing (Jan. 2) verifies the approximate parity of prices on both dates. On Jan. 2, this year, spot cotton on the New York exchange was 32.40, a decline of 20 points from 32.60 on Dec. 31, 1918. For 64x60 38½-inch print cloths 12¼c. could be obtained; 36-inch 4-yard sheetings were nominally priced at 16 cents, and 3-yard sheetings at 20 cents, approximately. The price on Pepperill wide sheetings on Jan. 15, 1918, was on a basis of 50 cents for 10/4 goods.

FUEL SHUT DOWN

The situation in January was further complicated by a five-day shutdown that was ordered on all manufacturing plants, which resulted in numerous gray goods mills declining to accept further business until the situation cleared. Openings of seasonable goods were held off in most instances until late in the month. In nearly all lines of seasonable goods, as they were being opened, it was found necessary to curtail the operations of all buyers as compared with previous operations, and the actual shortage of goods, which had been previously a question of debate, became an established fact for buyers to reckon with. The right to reduce quantities as might be found necessary was reserved when orders for converted goods were taken for May delivery—subject to acceptance and delay in delivery. The market was solidly and completely in sellers' hands. The important problem of the hour, as viewed by the trade as a whole, was to keep up production which seemed at the time an almost impossible task.

SCRUTINIZING CREDITS

It was not until February that the higher cost of cotton goods was passed along to the consumer. Until then jobbing prices had maintained a parity, or in instances a lower level than the primary market. Not only were jobbers themselves subject to a continuously advancing market, but they were unable in instances to get goods at any price. Jobbers also were looking to their fences in the matter of abnormal risk, brought about by the doubling and trebling of costs. To sell their customer his normal allowance of merchandise meant to increase his indebtedness in a three-fold ratio, and to recompense for the added general risk of doing business it became necessary for the seller to get his price; at the same time delivery delays were eating up the discount periods normally available. Mills, too, had adopted a policy of sailing closer to shore in the matter of futures, and 60 days was becoming more and more the limit of future sales. It was evident that manufacturers were determined to discourage too many liberties being taken with long-time future business, and to stop indiscriminate selling at the source of supply.

A GROWING SCARCITY

Mills were making money, but not the extreme velvet that appeared from surface indications, as goods were being delivered from time to time at approximately 50 per cent. under top quotations on sales made in 1917. Certain familiar items began to disappear from the market and jobbers were reduced to the necessity of subsisting on hand-outs of the best sellers. The confusion of traffic up to and including the end of February was so embarrassing that goods in transit were often 60 days overdue. On top of this acute traffic situation, the scarcity of skilled mill labor was becoming more and more serious. The agent for a group of Southern mills, outlining the prospect early in March, said that he had one mill standing idle, another running 66 per cent. of capacity, and two additional that were operating 80 per cent. and 85 per cent of capacity only, due positively to the fact that he had not, nor was he able to secure the skilled hands to man the looms.

On March 20, the Council of National Defense announced there had been created a body to be known as the Price Fixing Committee, composed of Robert S. Brookings of the War Industries Board, chairman; General Palmer E. Pierce, Dr. H. A. Garfield, F. W. Taussig, W. J. Harris, Hugh Frayne and Bernard M. Baruch. The duties of the Price Fixing Committee being to pass upon prices for all basic raw materials and to establish from time to time a price fixing policy to be submitted to the President. Prices, it was announced, would not be made until after costs had been passed upon by the Federal Trade Commission. With costs as a basis the Price Fixing Committee would then consider problems of production and distribution before arriving at its decisions. With this preliminary the probability of price fixing was injected into the trade situation. The market lacked balance; there was no stability; it was one price to-day, another to-morrow, and buyers bidding against each other. The trade agreed that price fixing on cotton goods was imminent unless means were adopted to regulate the continuous and objectionable practices that were dominating the market. Selling agents had discovered that mills that had taken contracts on what had seemed a reasonable margin had not left themselves room to meet increased expenses on a decreased production, and profit according to expectations.

WANT PRICES STABILIZED

Second hands, or in other words, speculative trading, had become so objectionable that market factors were in favor of some sort of regulation, going so far as to favor its suppression. At the same time the Government was privately in the market for large supplies, so that the civilian buyer, the speculator and the Government contractor were bidding against each other in a market that was actually below normal in supply. The Government had suggested no penalty for mills that did not respond heartily to its suggestion that mills should go after Government work without waiting to be solicited. A large number of cotton goods mills were already fairly well engaged on Government work, but there were a sufficient number that had not given any special attention to the matter to warrant the Government paying attention to it, so that the understanding grew that the Government, through its fuel regulation and other incidental conveniences, could make it quite inconvenient for mills not engaged to at least 40 per cent. of their capacity on Government requirements. Thus prompted mills scampered to catch up, and civilian supplies were further cramped.

By mid-April the price of three-yard 36-inch sheetings had risen to 27½ cents, and 38½-inch 64 x 60 print cloths had advanced to 18½ cents, and brown sheetings were being sold on ten-day terms. The Price-Fixing Committee had made a second trip to Washington, an admission that the trade was uneasy, and believed that the market was out of hand, and that prices were inviting Government interference. Meantime speculators had been perniciously active and no threat of Government reprisal sufficed to quiet them. About this time it was apparent that Government requirements were to be enormously increased, as they were, and that price regulation was to be a part of the means used to insure that the Government should get its full needs, and the trade metaphorically took off its coat and announced its readiness to engage 100 per cent. for war, and to let all else wait. Speculation by this time had become so odious that it went by the board.

GOVERNMENT REQUISITION

In May the Government was in possession of the cotton goods market. The price of 64 x 60 print cloths had been fixed at 78 cents per pound, for Government needs, at a time when the market price was 19½ cents per yard. On May 5 the Government stated its requirements of denim, requisitioning both spots and futures to the estimated amount of 70,000,000 yards. Goods in second hands, jobbers and others were held for Government use as ordered by telegraph from the Quartermaster's Department, which read as follows: "Your stock of denim, per stock list of May 4, is hereby requisitioned by the Quartermaster's Department. Please confirm. (Signed) Goethals, per Cotton Goods, Baruch." So business in this particular quarter was practically off the market. Goods had never been sold with so little effort, and, no matter how high the price, there was no time wasted in argument, as buyers were jostling each other in an effort to secure quantities. Without a Government order it was difficult to get bleached goods, most lines being withdrawn and manufacturers meeting deliveries in small allotments so as to insure a broad and discriminating distribution. The nominal price of Fruit of the Loom at that time was 32 cents. The price of unbleached 36-inch 56 x 60 four-yard sheeting had reached 23½.

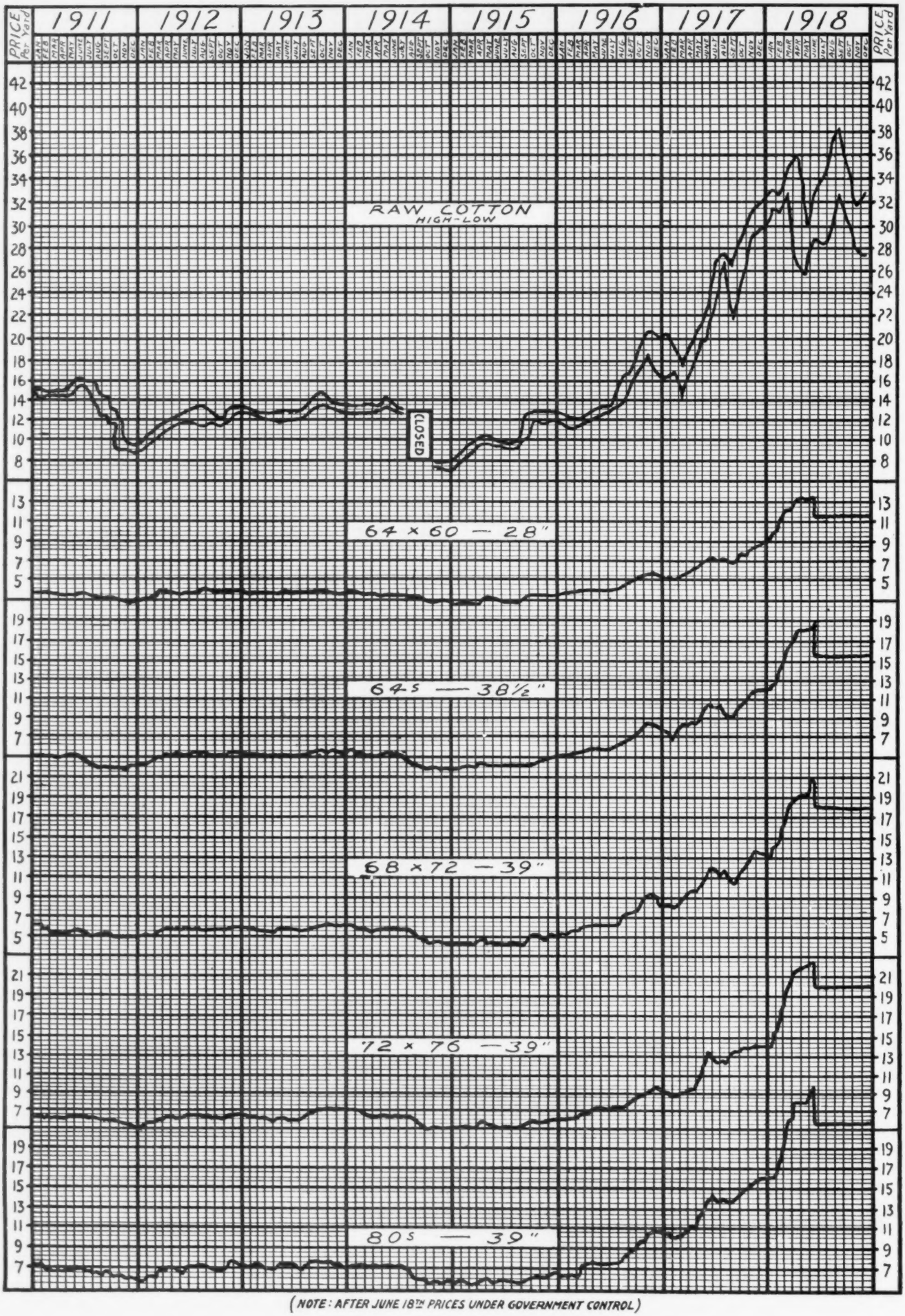
GOVERNMENT WORK PRESSING

Government requirements on which early deliveries were demanded were crowding civilian business aside and the Government was continuously adding to its requirements. Merchandise was not seeking the buyer, and the buyer was tiring of searching in bare places. Gingham stocks had been allotted on a basis unsatisfactory to buyers because of its stingy quantities, and a famine in merchandise was being accepted as the bitter truth. Those were trying days in jobbing circles, and the monopoly of transportation by the Government added to their embarrassments. The industry had settled in to war work in a big way and civilian critics got a stereotyped answer when they aired their troubles. It was generally accepted that there were to be practically no denims for the balance of the year, if the war continued that long. There was great concern on every hand as to how far the blockade of civilian business was to affect the future.

It was suggested that all future contracts entered into with any department of the Government which operated to delay the execution of existing civilian contracts should as a matter of protection to the manufacturer clearly specify any statutory authority that the Government may have with respect to commandeering or by way of priority enforcement, and should further specify that such authority is exercised. Care should be taken that application be made for a priority order and that a certificate in connection therewith be issued.

PRICES OF RAW COTTON AND PRINT CLOTHS FROM 1911 TO 1918, INCLUSIVE

COMPILED BY TEXTILE WORLD JOURNAL FROM REPORTS OF ACTUAL SALES MADE IN THE NEW YORK MARKET



(NOTE: AFTER JUNE 18TH PRICES UNDER GOVERNMENT CONTROL)

That when deliveries are postponed under existing contracts contractors should be immediately notified, and that revised delivery dates be made, and orders reconfirmed or cancelled. Different conditions made an absolute ruling with regard to all existing civilian contracts impossible. Counsel had advised that the mere acceptance of a war order did not constitute a defense for the postponement or cancellation of any existing civilian contract and that, accordingly, manufacturers dealing with the Government should make sure that the Government exercised its power to compel priority execution wherever such priority execution operated to delay existing orders. The wisdom of the suggestions offered at that time is being proven at this later date when the slow process of special legislation is being resorted to in order to adjust carelessness in the execution of Government orders.

PRICE FIXING

The announcement in June that price fixing had been determined on made market transactions of secondary importance and a partial paralysis of trade resulted while the trade waited in suspense for further developments. The magnitude of the job the Government had undertaken was evidenced in the delay in announcing its results as only sketchy fragments of returns came to hand. Meantime Government requirements mounted up in a way that offered scant opportunity to civilian business, while the trade awaited full and final adjustment as it continued to do during the major portion of the initial price fixing period.

PATRIOTIC AND PATIENT

Price fixing, in the form it took, was put up with rather than approved. Something had to be done because the market was obviously out of hand and must be dominated from the outside. The Government may be a hard taskmaster, in a crisis, but it is a liberal paymaster, as was demonstrated in this instance. Whatever fault finding existed in private no stand against it was made in the open, as it was tacitly understood that questions of patriotism were involved. The outspoken opinion of a factor, half a lifetime in the cotton goods trade, will pass for a fair sample of how men felt about it: "When I read what our boys are doing over there," he said, "how they fight and suffer and die, how only one thing matters to them—to go ahead with the job in hand until the beastly thing is properly finished, I feel pretty small in the midst of this market revision—a lot of us hanging on the decisions of price-fixing committees and Government regulations, revising this and that to keep us from, metaphorically, cutting one another's threats. Of course, business must go on, it is essential that it should, but we should be able to handle it as our boys handle the Huns—man fashion. We had to have help, because there was no co-ordination in the trade and no practical policy that could hold its factors together. This experience should teach us something, but, I dare say, it will not." Anyway it stabilized the market.

CUSHIONED THE SHOCK

The fact that the Government proved itself a good paymaster took the sting out of its procedure when it laid its official hand on the price list. Besides being Americans we are human beings after all, and there is a stiff mixture of cupboard love in love of country in this twentieth century. However, from the period dating from June 18 the market settled more or less into a jog trot so far as commercial activity went. As the Government had taken precedence as the one best buyer, and as there was no price competition, Government contracts had more to recommend them, although they forced the postponement of numerous profitable civilian orders and others not so profitable. This postponement of civilian business was put up with, while patience was regarded as a patriotic virtue until the unexpected happened and the armistice that was accepted as the end of the war was declared. The end of fighting over there was the beginning of trouble over here. Buyers who felt they were embarrassed by high priced commitments passed the buck to the sellers. Cancellations came thick and fast, many of them so manifestly unfair that an organized front was made to counteract what threatened to become a general movement. Life consists in the alternating process of learning and unlearning, and if the trade learned anything in its war experience, or since, it is now, quite likely, in the process of unlearning it. It has learned the advantage of co-ordination by suffering for a period of time the disadvantage of doing without it.

SUPPLY AND DEMAND

For about half a year "the law of supply and demand" was held in a state of suspended animation, so far as it concerned the cotton goods market, and the cotton market was permitted to function, apparently, without interference, except at one point, when purely speculative transactions were prohibited for a time; not for long, but long enough to demonstrate that so-called natural laws as well as established precedent meant nothing at all to a people at war. Not a few have revised their previous opinions of the infallibility of the law of supply and demand since it has been so carefully set aside in the interest of business and as a measure of common safety.

Its too frequent abuse when called in defense of practices that offend against decency in business, as well as in violation of the "golden rule" is a sharper's defense of sharp practice.

Our Export Obligations Widespread

Necessity of Overcoming German Propaganda, Especially in South America

(By an Authority in the Trade)

TO review the export trade of 1918 is to review the battle fields of France and the destructive pathways of the sea, where American exports so largely went up in smoke or down in sunken ships. The total of exports from this country during 1918 are estimated at about $6,000,000,000 worth of commodities of one kind or another, about the same total amount as was exported in 1917. But that sort of thing has an end in sight unless the demands for reconstruction prove a worthy substitute. Exports of cotton goods from the port of New York during the month of October, 1918, bleached, unbleached, printed, dyed in the piece and dyed in the yarn, amounted to $5,047,592. Exports for the same period of hosiery, underwear, wearing apparel and other manufactures totaled $3,186,503. Exports of all kinds through the port of New York for 1918 are placed at $2,541,331,416, a decrease from 1917 of $364,048,188.

SOUTH AMERICAN TREND

Exports from this country were cut off from many neutral nations last year, and a readjustment of communications is being brought about. There was a black list which disturbed for a time our South American markets in particular, and we had Government control by license, both of which made for restrictions. It may be said that channels that were blocked by the black list no longer hamper trade in South America as that business has found other outlets.

American firms, the big representative units, are better known in South America than they were before the war, and they have the friendship of South American firms, likewise big and representative. They say, "We know them and they know us, and a mutual good will exists." German propaganda should never again poison the surrounding atmosphere that held the friendliness of the Americas at arms length.

AN ENGLISH MARKET

Speaking in pre-war terms, South America is an English market and, no doubt, from the English point of view it still is an English market. But Germany's influence as a competitor has been hard hit, if not killed, as the peculiarly Prussian methods by which she was extending her influence and expanding her trade has reacted against her. No self-respecting business man will knowingly lend himself to such rascality as Germany employed, and it is not to be wondered at that certain representative New York firms refused to enter the field against a competition that showed such obvious lack of decency in its dealings, nor could they see their way to convince certain credulous South American concerns that had been influenced adversely.

THE PRESENT WRECK

When Germany lost the war she left to the world a complicated wreck of commercial, financial and industrial entanglements that must be straightened out before the trade of the world can go about its business unhampered and in security. Germany can never reclaim that wreck, and it remains for the great commercial and industrial countries to take on themselves the task of reconstructing order out of chaos. Just what may be revealed as the wreck is being cleared away must wait on future developments for an answer. Germany has less export trade to-day, and whatever expectations she may hold for the future depend absolutely on what favors may be accorded her at the peace table, in order to afford her a means of making restitution for injuries perpetrated on the world.

ORGANIZE FOR PEACE

Foremost among the lessons taught the commercial nations by the war is that countries must organize for peace in a way that has never been given a thought before, because the need for repairing the structure of civilization, as well as reconstructing the whole fabric of world trade, is at the bottom of world problems, and the débris must be cleared away as the first step toward an organization for peace. In contrast to Europe, the United States especially will be in a position to return more promptly to trade development, as its system of production of textiles and other commodities, while largely diverted for war purposes, has not been so extensively disturbed nor destroyed. The world must look to this country for supplies, and it will be to the world's advantage that essential supplies be speeded up.

TASK OF RECONSTRUCTION

It is hoped, however, that pending the settlement of peace terms the conference may pay some attention to the commercial situation and that the Commission will declare rules, as it will probably be asked to do, for the direction of commerce on a basis of the expectation of what is to come in the final decisions, and in this way help to establish earlier markets in those places where final adjustments may be anticipated, so far as the allocation of ships will permit. It is no light matter to rearrange the commercial viewpoint, on account of the abnormal condition of trade and industry, and because there is at present no standard of values on which such viewpoint can be based—How are credits to be established; what will money be worth; what is to be the cost of labor? All former perspectives have been disturbed by war and normal conditions have been too seriously disarranged to permit of readjustment without testing them thoroughly.

SHORTAGE OF SHIPS

With regard to shipping during the reconstruction period, and what the United States could look forward to in connection with its world's business, Chairman Hurley, of the Shipping Board, stated that there is not sufficient shipping in the world to carry on the work of returning United States soldiers to this country and to carry the needed quantities of heavy building materials abroad and at the same time fully and immediately to meet the shipping requirements of general commerce. "For that reason," he said, "only a limited portion of the shipping which can be constructed in 1919 will be available for use in the ordinary commercial channels." So far as the upbuilding of a permanent export trade is concerned there is nothing more menacing than haste at the beginning, that so often makes for a leisurely repentance of mistakes that might have been avoided. The Government is seriously considering the allocation of shipping at least for the first half of the year and perhaps for a materially longer period.

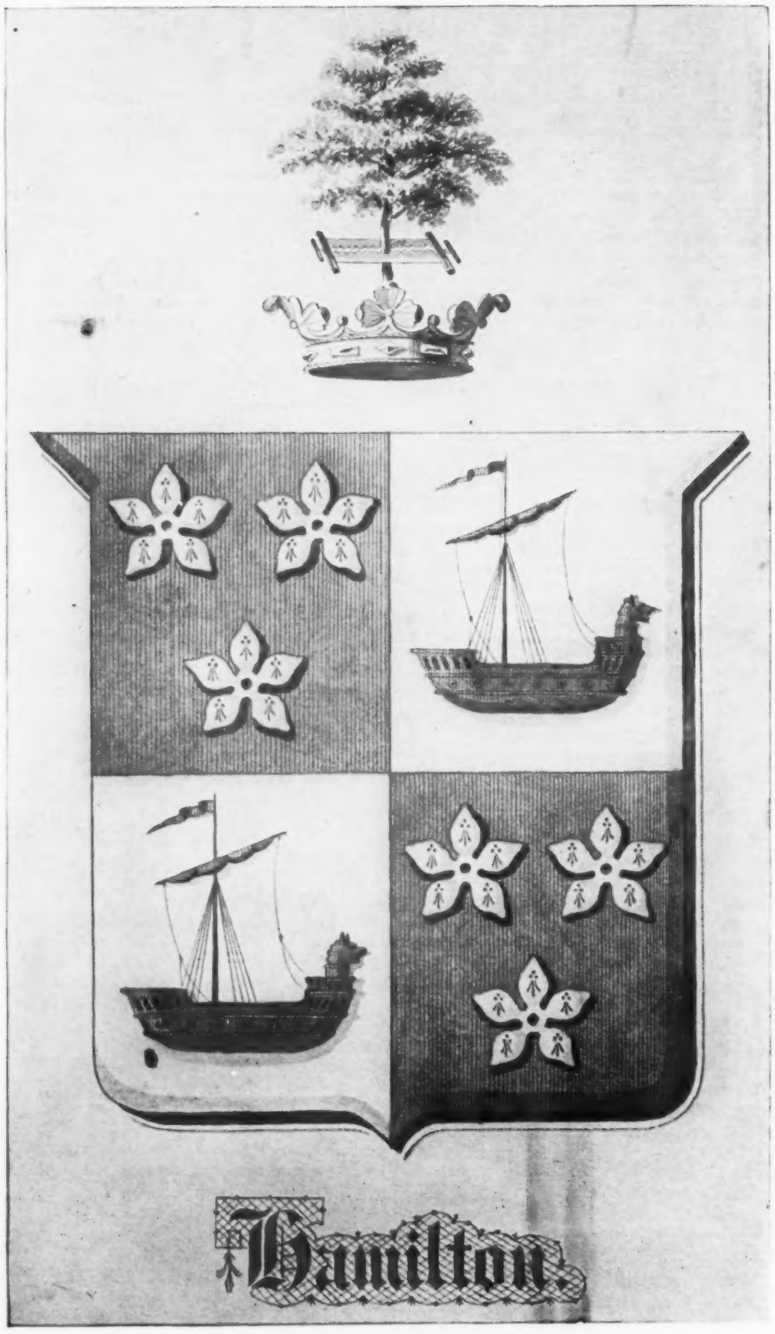
THRIFT AND PRECISION

A lesson of the war, which must be carried out in future production, in order to get the most out of exports, is precision—the cutting out of waste in the manufacture of seconds or of inferior products that cannot figure in the materials to be sent to foreign markets. Merchandise for export must be according to specifications with an exactness that will insure their classification as first class to the last inch and to the last ounce, in order that their standing may be maintained in the face of the fiercest competition. It is a self-evident fact that world competition, when organized, is to be of the keenest order—the old-time rivalry reinforced by a driving necessity for exports, the like of which the world has never before known. The people of the United States have practised thrift for war's sake during the past year or more, but indications point to the necessity of thrift for its own sake, by the nation as a whole, and by business for its maintenance in world trade.

Competition from abroad will be under the most intensely scientific management, from the purchase of the raw material to the distribution of the finished product, and the authoritative support of governments will be at its back. Nations whose very existence is

HAMILTON MANUFACTURING CO.

ARTHUR R. SHARP, Treas.



SHAKER FLANNELS
SOLID COLOR FLANNELS
MOTTLED FLANNELS

HICKORY STRIPES
DIANA CREPE
SHIRTINGS

MAPLE LEAF CHAMBRAY
SQUIRREL CLOTH
EXPORT DRILL

AMERICAN BLEACHED GOODS CO.

Selling Agents

NEW YORK **CHICAGO** **ST. LOUIS**

largely dependent on exports can only afford to go about the business in an intensive way. Every process of distribution and production is precisely measured until, so far as humanly possible, an ideal is established as a standard to be followed by all. So far as organization can guarantee success, success is guaranteed. This system of organization is a hangover from the war when the need for exact precision was a matter of life and death. If the United States is to meet this system of infinite attention to detail it must add improvements to its pre-war looseness of production that left certain types or classes of merchandise, especially textiles, at the mercy of outside influences, not excepting changing fashions, that make for waste. Not only of material, but by diverting machinery to no purpose.

Intensive thrift in both material and manufacture, if followed, will make anything possible to our manufacturers, even higher wages, and this idea of thrift in production should be inculcated into the understanding of every worker in every factory.

HOPE AND HELP

Half the world is bankrupt, but there is room for hope. The cold logic of pre-war business applied to to-day's conditions could find no remedy. Peoples have put their trust in the spirit which is tremendously great and tremendously strong. Business must provide an underwriter that will be able to finance the world's trade or it must wait. So far as financial stability goes we are only at the beginning of things. Belgium is a mammoth bread line whose length and breadth includes all Belgium, with an additional 1,500,000 destitute people in France. It should not be necessary to explain the obligation of attending to these famishing millions first, and the further fact that they will be attended to first. In conjunction with this fact, purely commercial exports to other parts of the world will be encouraged to the limits of possibilities, no doubt, but those possibilities are not outlined at present.

OF NATIONAL CONCERN

The one-time attitude is disappearing in certain export quarters that their business is exporting goods and collecting the price, and that that is the beginning and end of it. It didn't occur to them, once upon a time, that they might, by any chance, be exporting themselves, and that their country might have an interest in the way they carried on their business. Export business has no room for inconsequentials on either side of the broad seas, less hereafter than ever before. The truth is that our export trade has assumed national proportions and will be of national concern hereafter. Such is the case in every other great exporting and importing country, and the measure of a country's exports will be in terms of service to those other peoples with whom it deals. They have things to be done, and commodities to sell, and the country that assists in their development, and in the consumption of their products, will benefit accordingly. Service makes for good will, and good will opens markets, and markets beget other markets, and something besides price figures in the exchange of goods.

AT OUR GATES

There are buyers in the New York cotton goods market from distant places that lie half way round the world from New York: China, New Zealand, Australia, and elsewhere, and there are others to follow, strangers here for the first time, to investigate not only merchandise but merchandising, and to get first-hand impressions.

They are influential at home, and their example will be followed, and they are here to be shown. Our great cotton mills, our great woolen mills, and our industrial cities are representative enterprises; if they should be shown them, and be made to feel the warmth of America's interest. They will go from here to other markets, probably to resume relations broken off by the war, and they will be influenced by impressions received while here. One doesn't need to be told the ways of business, but it is well to be reminded that one cannot see into it by just squinting at it.

LATIN AMERICA'S CASE

During the war American export trade was carried on under great difficulty, but to the credit of those who stuck to it with a tenacity that deserved success, it was carried on with the Americas. We do not need to be told that Germany's position in Latin America was stronger than ours, because Germany by close study knew her needs and took care to meet them, and as a consequence their mutual interests held together when ours drew away. For whatever reason this was so, victory has given us an opportunity to correct our position, to make the term America significant of Pan-America and of friendly association founded on mutual service. The beginning of a better understanding demands first of all study of Latin America so that we may know her and know how to serve her, and trade will naturally follow a service well performed. The best way to destroy the influence of German propaganda is to disprove it. Latin Americans themselves will laugh it down when they have been shown that it was a flimsy veil for false pretense. But we must prove our case by actions, words are not enough.

Trade is seldom one-sided. To sell more we must buy more; we must sell through service and exchange of commodities, and no people will deny us profits that are honestly earned. The more we buy the more we sell. Give opportunity to others and we will be afforded opportunity in return, and the initiative should be ours.

The World's Textile Trade During 1919

Possibilities of Competition by European Countries and Outlook for America

By *L. W. Alwyn-Schmidt*

THE year 1919 will be a year of readjustment. The textile mills of the world which have been busy since more than four years supplying army cloth, will now be made available again for making civilian goods and the demand of the civilian business will be dominant. But the industry does not start under very favorable aspects. The disorganization of all foreign transportation which has been characteristic for the period of the war is bound to continue for at least another half year until America and England have been able to repatriate their respective armies, and a great part of the world's shipping will be occupied with bringing food and reconstruction material to Europe after this first task has been accomplished. So the exporters of textile goods will still find themselves hampered a good deal by the difficulty of securing prompt delivery of their shipments, which in turn will act to retard the expansion of trade. Europe in this respect may be placed even better than America. The necessity of supplying foodstuffs and raw materials to Europe makes it imperative that ships in great numbers should be concentrated in such parts of the world where both food and raw materials can be found. This will allow the European textile manufacturers to make use of the outgoing shipping for sending textile goods in payment of the imports. The American textile manufacturer is not so favorably placed. America is expected to send foodstuffs and raw materials to Europe and a large percentage of the ships leaving our ports will be filled with commodities belonging to one or the other group. There will be little space left for shipping our own industrial products unless we are prepared to carry them ourselves.

COMMERCIAL RELATIONS WITH EUROPE WILL UNDERGO CHANGE

Our textile manufacturers probably will not be interested as much in European business during the next year as they have been during the war. Our relations to the European textile market have always been of a very peculiar character. During the war, of course, great quantities of American textiles were shipped to Europe. This trade, however, was a war business pure and simple. The orders were mostly given by the representatives of one or the other allied governments and deliveries were made on this side. Also the civilian trade was largely influenced by the war. France having lost a large part of her textile industry in the territory occupied by the Germans had to make good her deficiency in textile materials and came to us for supplies; so was Italy and to a minor degree also England. This business had only developed since the outbreak of the war and it is bound to cease with its end as soon as these countries are able again to work with their pre-war industrial efficiency. Our sales to Europe then will return to the level and range of goods we exported before the war.

This pre-war business with Europe, by the way, was fairly considerable and it had been growing very rapidly during the last few years immediately before the war. The American textile manufacturers being unable to compete against the high tariffs of most of the European countries with staple goods as cotton piece goods, etc., had begun to sell specialties and had become very successful in this kind of trade. American dress materials, furniture goods, and especially American silk hosiery, were winning much ground in England, France, Italy, and Spain, and even Germany had experienced its American invasion. The success of our manufacturers in this line of goods resulted principally from the application of vigorous American merchandising methods. If the English drapers declined to handle American men's hosiery the salesmen would go to the shoe stores. If the furniture people found fault with the furnishing materials, the drapers were applied to. Distribution was largely assisted by a well carried out advertising campaign. This business, once introduced, will now come back. It will be the mainstay of our European trade, and starting from it the future business will have to be built up.

ABSENCE OF GERMAN COMPETITION WILL CHARACTERIZE 1919 BUSINESS

The war has brought a great change in the textile business of Europe. It has eliminated German competition. The importance of this fact will only be realized fully when normal conditions have been established. Germany has filled a very peculiar place in the European textile business. Its textile industry has not always supplied the cheapest article in the market, but the German textile manufacturers could be relied upon to bring a marketable line in ladies' hosiery or men's shirtings or any other textile material when the market required something to fill out an unused corner. France would bring the fancy stuff. All the leading and fashionable patterns sold in Western Europe were of French make. England would take the lead in men's dress goods and supply a good standard line of piece goods at reasonable price. But the German manufacturers were always willing to make a special line to get the business. If they are not admitted again to the markets of their present opponents there will be left open a gap which so far has not been filled. Part of the pre-war German trade may be taken over by England and France. Will it be possible for the American textile industry to acquire what will be left of the former German textile business in Western Europe?

The question is one which deserves the close study of our manufacturers. The American textile industry has made considerable progress during the last four years. American chintzes are to-day as good as the best English and German, and America doubtless leads in certain lines of printed goods. Our silk industry unfortunately has not been very progressive in former years as far as foreign trade is concerned, but it seems to have changed its attitude now in favor of a more active support of the export business. American printed silks should be able to compete successfully with the printed silks made in Crefeld. Naturally all must depend from the general development of the situation. If prices stay where they are or do not decline too much, the chances seem to be extremely favorable for our industry. If they return to pre-war levels our European business cannot be expected to be much larger than it was four years ago, allowing always for natural growth and changes caused by the war.

INFLUENCE OF INDUSTRIAL REHABILITATION

It will take some time before the European industry can return to its pre-war efficiency. The process of rehabilitation may go faster in England, but will be slower in France, Belgium and Germany. England, although heavily hit by the war in its industrial man power, has been able to keep most of her textile factories going. England also has followed a very conservative policy in provisioning her industries with raw materials. She has secured complete control of the wool of her colonies and there are sufficient reserves of cotton as to enable the English textile mills to take up manufacturing for civilian use at very short notice. We may, therefore, expect during the next months a rapid increase in the production of textiles in England which soon will make itself felt in growing exports. If English predictions are right the English textile industry will work on its normal basis again by the middle of next year.

NEUSS, HESSLEIN & CO.

Manila, China, West Indies, Central and South America.

Main Office: 43-49 White Street, New York.

EXPORTERS

IMPORTERS

DRY GOODS DEPARTMENT

Direct and Sole Export Agents for Mills.

Prints, Sheetings, Drills, Osnaburgs, Blankets, Flannels, Khakis, Domets, Colored Drills, Ginghams, Cottonades, Denims, and all Classes of Converted Cotton Goods.

IMPORT DEPARTMENT

Direct Importers of

ALL FOREIGN COTTONS, WEST COAST AND CHINA WOOLS, KAPOK, INDIGO, COCHINEAL AND OTHER PRODUCTS FOR THE TEXTILE TRADE.

Cable Address: Bafouer. Established: 1864.

Slower progress will be made in France. The French textile industry is severely injured by the war, and many months will go past before the factories around Lille can be rebuilt and equipped with machinery. In the meantime France will have at her disposal only the mills of Western France and the emergency textile factories which have been erected and put into operation during the war. It is, however, hardly imaginable that France will produce during the next year much more than about three-fifths of her normal output of textile goods. The industrial production of France may be strengthened somewhat by the acquisition of the large textile mills in Alsace-Lorraine which apparently are in good condition and ready to take up operation as soon as the necessary materials can be supplied.

The problem of Belgium consists mostly in securing new industrial equipment and materials to set her textile industry in motion again. How long it will take to accomplish this task is difficult to say and must depend from the extent of the damage done to the Belgium textile mills. Belgium has been a very active exporter of textile goods before the war. It is to be feared that more than a year will pass before the influence of the Belgium cotton goods can be felt again in the world's textile markets.

MANY NEW TEXTILE FACTORIES IN "BUYING" MARKETS

While the European textile industry tries to readjust itself to the newly created conditions, there is also taking place a readjustment in the not European textile markets. With the exception of the United States and Canada, all not European markets have been depending very largely upon European textile goods. This arrangement was very favorable for these countries, as they had all the advantages of the large textile producing countries of the world without their troubles and in many cases were even buying textiles considerably cheaper than they were sold in Europe. During the year 1913, for instance, it was cheaper to buy certain textiles in Buenos Aires than it was in London. The explanation for this is that the European textile mills would often ship surplus stock to their agents abroad, to sell them for any price they could obtain, so as to prevent the appearance of these goods in the European market. This practice was continued until the end of spring, 1914, when business in Europe appeared to get more active again.

This dumping of unsalable merchandise on foreign markets, while it must be condemned in general, this time proved of great value to the markets concerned. When the war broke out in Europe they were pretty much loaded up with textile goods of all description and all makes, and for a year at least they did not feel so heavily the lack of new supplies. The realization of what the war meant to the not European markets came only in the middle of 1915. By then all the best lines of European textiles had been sold out at prices not much higher than those applying usual, but no new goods came in. At first there was a little trade done in neutral goods, but with the progress of the war even neutral shipments were not any more obtainable and American goods practically were the only ones that were to be had at reasonable prices. The result of this situation has been a material strengthening of the textile industry outside Europe. Very much as the American industry had to make up its mind to manufacture many textile lines for which it had been relying nearly exclusively on imports, so other countries were now busy to make up the loss of imported textiles by widening their own fields of production. Orders for textile machinery were placed in America from practically all parts of the world. Brazil added several new big cotton factories to those already existing. Argentine, Chile, Peru are producing textile goods on a larger scale than in pre-war times. House industries expanded to factory industries, and such countries as China, India and Japan suddenly became heavy exporters of textile goods. Also Australia and South Africa have increased their national production of textiles. This new industry has come to stay. It is a new factor in the world's production of textiles and it will have to be reckoned with in the future.

With the exception of Japan, India and China, none of these new producers of cotton goods seems to have made a serious attempt of exporting. India, of course, always has exported certain of her products and her manufacturers have now found new markets in Asia, Africa and Australia. The Indian goods, however, are of such a character as to exclude a strong competition with the better European and American textiles. The well-managed China cotton mills have found their new market principally in Siberia, and those of the mills under Japanese control have sold a large part of their output to Japan, while Chinese cotton goods are used in making garments for distribution in Korea and the Far East. The most important distributor of cotton goods of the three countries mentioned, however, has become Japan, which after the war will be amongst the leading cotton markets of the world both as a consumer and a seller.

The coming of Japan, in fact, is of great significance to the textile trade of the world. While not competing originally with any of the other countries producing cotton goods, Japan has made a reputation on its own. Japanese goods were different from those made in Europe or the United States. They were bought by the consumers in all countries because they were Japanese. But while we saw only the increasing number of Japanese printed cottons in our stores we have overlooked that at the same time Japan has manufactured staple goods very much of the same character as those made in Europe and that the export of these staple goods is growing from year to year. Mexico and South America are buying to-day already large quantities of Japanese piece goods which seem to be always a little cheaper than those sold by other importers or local mills. These goods have come to stay. Chemnitz, Glogau and other German textile centers will find their strongest competitor in Japanese textiles, and it is very doubtful whether the German textile goods will ever attain the position again they have held before the war. Also Spain may soon feel the strength of the Japanese competition.

DEMAND FOR TEXTILES OF EUROPEAN CHARACTER

But neither Japanese goods nor the vastly improved national production of other countries has been able to extinguish the demand for European made textiles in all the not European markets. Only the European mills and those in the United States can fill this demand satisfactorily. Whatever changes, therefore, have taken place and how much ever they may have influence, the demand for staple goods the merchants of the "buying" countries will buy again the high-class European and American textiles. Already now a great many orders have been placed, and our own mills might have been busy with turning out export goods if it had been possible to guarantee prompt delivery. As it is, there are waiting still thousands and thousands of cases to be forwarded as soon as ships can be made available.

This demand will increase during the next few months. It may concentrate at first in Europe but it will soon also spread to the United States. It will be the principal feature of next year's textile business.

This large international trade and the considerable trade to be expected from civilian sources in Europe and in this country should keep the textile mills of the world pretty busy all through the next year and a large part of the year 1920. The output, in fact, will only be limited by the capacity of the mills, labor and the supply of raw materials. The supply of the latter may very likely fall much behind the demand. Judging from recent estimates, there seems to be a sufficient stock of raw materials available to take care of a normal yearly demand. The coming year, however, will not be a normal one. It will have to make good the failings of four successive years. During the next twelve months it will be necessary to restock the empty shelves of the dry goods dealers in South America, Australia and South Africa. We shall have to clothe in civilian clothes approximately 30,000,000 men who have worn uniform during the last four years. Belgium will want its supply of decent clothes after it has been clothed by charity for four unhappy years. Finally, Germany will desire to replace its substitute textiles by the real articles, wool or cotton.

This is a large program for the textile industry of the world. It will require the most efficient use of all the existing equipment and such raw materials as are available.

Prosperity for New Bedford Mills

Large Dividends Paid and Year Active in Production

(By Our Regular Correspondent)

NEW Bedford, Mass.—With every cotton mill corporation in New Bedford paying dividends, in many cases of a most liberal nature, the share market more active than ever before in the volume of business transacted, and not a plant with any indebtedness hanging over it, the year of 1918 may be said to have been highly satisfactory, both from the standpoint of the directors and share-holders alike, while in addition the wages paid to the operatives were the highest in the history of the city.

AVERAGE DIVIDEND 12 PER CENT

Although the net earnings, after allowing for a most substantial deduction in the way of taxes, were not as high as was the case in 1917, yet an average dividend of over 12 per cent. was declared in comparison to the 16 per cent. disbursed the year previous. At the same time many of the corporations, with an eye to the future, built up a large reserve fund and cut down the floating indebtedness, making an increase in the net surplus of quick assets, this being especially notable in the case of the newer corporations.

All this has been accomplished despite the fact that wages of the operatives during the year were increased to the extent of 17½ per cent., advancing the payroll to thirty million dollars per annum, or almost $576,200 per week. In keeping with a policy followed in the past, the operatives in the textile industry of New Bedford were higher paid than in any other city in the country. Owing to the scarcity of help, the mills in very few instances were able to run to their full capacity, the influenza epidemic, coupled with the alluring offers from munition plants and the draft law, having a marked effect on the labor market. During the latter part of the year, however, there was no lack of help, and the management will be particularly well situated in this respect when the period of reconstruction has been passed and business is once more established on a peace basis.

FEW ADDITIONS MADE

Owing to the government restrictions placed on building, and the exorbitant cost of labor and materials, there has been little accomplished in the way of additions to plants, and for the first time in many years, no new mills were erected. The Manomet added to its plant by the expenditure of $75,000, in the nature of a brick structure 80 feet by 169 feet to No. 1 and No. 2 mill, two stories each. The New Bedford Textile Company erected a two story brick addition and boiler house, 77 feet by 113 feet, at a cost of $30,000; the New Bedford Cordage Company built a one story brick storage house at an expense of $15,000; and the National Spun Silk Company completed a four story brick addition to its plant which with the cost of equipping with machinery amounted to $750,000. The corporation is capitalized at $1,000,000 for its two mills, is equipped with 28,000 spindles, and now employs 1000 hands. The Nashawena has plans drawn up for the erection of a new mill. Several other mills made minor changes in the interior, but with the lifting of the ban which has been in existence on buildings apart from government work, it is expected that many of the corporations will go ahead with plans which have been contemplated for some time. Two waste mills are planning to erect new buildings during the coming year.

DIVIDENDS OVER SIX MILLIONS

During the past year New Bedford cotton manufacturing plants distributed in dividends $6,411,091, against $8,077,176 in 1917, which on a capital of $50,656,300 figures out to 12 2/3 per cent. The Pierce Manufacturing Company again paid out an aggregate of 41 per cent. for the year, the same as was disbursed in 1917, this corporation leading in the liberality of its payments to stockholders. Quissett came second on the list with 28 per cent. on its common stock, repeating the high mark it set the year previous, and being closely followed by Booth preferred, the excellent showing of the latter plant enabling the directors to pay off accumulated dividends which reached an aggregate of 25½ per cent., leaving but three per cent. unpaid. No dividends on the common stock have yet been declared.

Kilburn also set the highest mark for the corporation since 1910 by paying 20 per cent. against $8 in 1917. The sum of $3.50 was paid quarterly, with an extra six dollars tagged on at the end of the year. From 1908 to 1916 inclusive six per cent. was distributed, with 33 1/3 stock dividend in 1910. Holmes paid 19 per cent., a decrease of three per cent. over the previous year, but the showing of the City enabled the directors to pay an extra $10 in addition to the regular two per cent. quarterly, netting eighteen dollars for the year.

SIX PAY 16 PER CENT

Half a dozen mills distributed an even sixteen per cent., the list being comprised of Acushnet, Grinnell, Hathaway, Manomet, Nonquitt and Whitman. Taber and Wamsutta both disbursed $15.50, the former being half of one per cent. over 1917, while Wamsutta showed a gain of three per cent. The showing of the Bristol Manufacturing Company was one of the most improved of any of the New Bedford plants, paying as it did 11¾ per cent. in comparison to 5½ twelve months ago. Both Potomska and Dartmouth common fell off from the previous year, Potomska paying 12 per cent. against 13½, while Dartmouth dropped from 42 per cent to twelve per cent.

The earnings of many of the mills were decreased owing to the spirit of patriotism which prevailed, the controlling interests taking over large Government orders in an endeavor to furnish the supplies of the army overseas, and sacrificing business along regular domestic lines which would have been far more profitable from a monetary standpoint. Specializing as they do on the finer goods, the New Bedford mills were not so well equipped for the coarser products required, as in the case of other cities in New England, with the result that the output in production was not so great in comparison with their competitors elsewhere. Dartmouth, Wamsutta and Nashawena took over a tremendous amount of Government orders.

OPERATIVES REAPED HARVEST

The yarn mills were very fortunate in the fact that there was a big demand for their product with a liberal margin of profit even after paying wages to the operatives, which were approximately 90 per cent. over and above those paid in pre-war times. Although suffering from a laxity of help which prevented many of them from running to full capacity, there was a fine response toward the end of the war from the women operatives who had not worked in the mills for a number of years. The patriotic appeal from the Government Labor Bureau, coupled with the exceptionally high wages offered, induced many of the women to answer the call and work part of the week in the mills.

Many cases could be cited where the father and mother and several children in one family were all employed in one mill and aggregating from $150 to $200 for the week's labor. Most of the textile workers are of a thrifty nature, and the added income in most instances has been salted down in the way of War Savings Stamps and Liberty Bonds, to which there was a ready response, easy payments having been adopted by most of the mills in the city to encourage the saving habit.

ACTIVITY RESUMED IN SHARES

There is a feeling of optimism prevailing that within a few weeks the cotton mills will once more be on a peace footing which will call for all the goods they will be able to manufacture for some years to come, owing to the markets being reported so bare of stocks. This has been confirmed to some extent by the increased activity in the stock market during the past few days. In the meantime, most of the plants are weathering the quiet period without recourse to shutting down, by working on stock orders in view of the heavy demand which is anticipated in the near future.

Reverting back to the mill share market, the fluctuations during the year were remarkable, showing as they did a variation from 1½ points to 89, as in the case of Quissett common. The heaviest trading was noted in Quissett, Sharp common, Wamsutta, Manomet, Nashawena, Nonquitt, Bristol, Fairhaven, Taber and Bristol, but singular to say, the shares are even now rated considerably lower than in 1909 despite the fact that the dividends for 1918 were very much higher than in the boom year of nine years ago. Manomet touched a mark of 150 for the first time in its history, and although it fell off considerably towards the end of the year, it is still quoted at a much higher figure than twelve months ago. The same applies to Nashawena and Nonquitt, operated by the same controlling interest, the William Whitman company, while Quissett, Wamsutta and Bristol have all shown a big increase over the corresponding prices of 1917.

Lancashire Cotton Industry in 1918

Manufacturers Realize Good Profits Despite War's Restrictions

By *Frederick W. Tattersall*

MANCHESTER, ENGLAND, Dec. 16.

COTTON spinners and manufacturers in Lancashire in 1917 experienced considerable prosperity, but during 1918 the profitable state of affairs has been more pronounced than ever. More money has been made in the spinning of yarn than in the weaving of cloth, but probably taking one concern with another the year from the employers' point of view has been more satisfactory than any similar period in the history of the trade. Considering the high level of values in the raw material price fluctuations have not been very important but on many occasions the uncertain outlook has resulted in a wide difference of opinion among users as to the advisability of purchasing ahead or operating from hand to mouth. The problem of securing adequate supplies of American cotton has been more acute than ever, but now the war is over increased shipping facilities are being provided and stocks in Liverpool are being added to. The Control Board, which was appointed by the British Government in June, 1917, has continued its work and although there have been occasions when its policy has been criticised the regulations which have been thought necessary from time to time have given general satisfaction to traders. In June last it was necessary to make a further reduction in the consumption of raw cotton and mills engaged on American qualities were only allowed to run 50 per cent. of the spindles for 40 hours per week. A similar curtailment of output transpired in the weaving branch of the industry while mills using Egyptian cotton were compelled to only run 80 per cent. of the machinery for the full 55½ hours per week. In November the members of the Board reviewed the general situation and made certain changes in the rules as to the working of the mills. It was decided that 55 per cent. of the total spindles engaged on American cotton should be allowed to run for the full 55½ hours per week. No change was made with regard to Egyptian spinning mills. Cloth manufacturers were informed that until further notice they would be allowed to work 65 per cent. of their looms for 55½ hours per week. The levies upon employers were reduced and the general regulations which were then announced remain in force at the time of writing. It is believed that the time is not far distant when the Board will be in a position to remove the restrictions and allow firms to make their own arrangements as to running machinery. A feature of the year has been the appointment by the British Government of a special commission to visit the United States to consult with the authorities at Washington with regard to the greater use of the lower grades of American cotton.

FOREIGN TRADE SMALL

The trade of Lancashire cloth manufacturers with foreign markets has been distinctly smaller in point of yardage than in 1917, but values have been on a distinctly higher level so that shipments in pounds sterling total to a larger amount than in any previous year in the history of the industry. The following is a comparative table of cloth shipments in yards and value for the eleven months ended Nov. 30 for the past three years:

	1916.	1917.	1918.
Yards	4,756,143,400	4,626,165,400	3,488,323,200
Value	£79,782,337	£103,282,182	£128,283,697

Early in 1917 the British Government decided not to announce the destination of exports and for nearly two years the trade has been without data of this kind. The Board of Trade, however, is now publishing the figures in the old style and it is of interest to point out that the chief cases of increased shipments for the eleven months ended Nov. 30, compared with the same period in 1917, are as follows: France, 61,656,000 yards; Egypt, 60,638,000 yards; British South Africa, 46,826,000 yards; Australia, 21,539,000 yards, and Argentine Republic, 18,839,000 yards. The principal instances of decreases are Calcutta, 398,864,000 yards; Bombay, 378,660,000 yards; Dutch East Indies, 89,183,000 yards; China, 83,837,000 yards; Burmah, 49,575,000 yards; Madras, 43,063,000 yards; United States, 37,793,000 yards, and Canada, 35,275,000 yards. During the first six months of the year the general demand in the Manchester market was of a rather indifferent character and foreign buyers resisted strongly the advancing tendency of prices. In June, however, there was a revival of demand and certain leading shippers led the way and an active buying movement set in, especially for India in light fabrics and for Egypt and South American markets in a variety of goods, especially printing and finishing cloths. At that time there seemed to be no probability of the European war coming to an end until towards the close of 1919. The collapse of Germany, however, and the signing of the armistice terms a month or two later completely demoralized trade. Dealers in the chief outlets abroad were alarmed at the situation application was made to the employers and owing to the anticipation of a slump in values forced sales occurred at ruinous prices with the result that in a very short time rates fell about 40 per cent. Since the beginning of October business in the Manchester market has been practically at a standstill and although prices have not dropped to anything like the same extent as abroad, manufacturers have been prepared to accept distinctly less money than say last July. It has been a very remunerative year in the home trade. Most of the leading houses in London and the North of England for the six months ending June 30 last were able to present record balance sheets to the shareholders.

SPINNERS MAKE GOOD PROFITS

It has been a remarkable year for spinners of yarn and so far as prices and profits are concerned all previous records have been broken. From January right through the summer an increasing demand was experienced and spinners were unable adequately to satisfy the requirements of their customers. Prices advanced at a rather alarming rate quite irrespective of raw cotton values and the cost of production, with the result the margin of profit has been wider than could ever have been dreamt about in pre-war times. Spinners of American and Egyptian yarns have done equally well and in spite of the excess profits duty which has hit many concerns very considerably, increased dividends have been paid and in numerous instances special bonuses have been distributed to shareholders. According to a table of the stocktaking results of 40 large concerns for the twelve months ending Nov. 30, 1918, the average profit per company was £14,403 against £5,085 in 1917. After allowing for depreciation and interest on loans the profit on share capital works out at over 34 per cent., as compared with only 13 per cent. in the previous year. Statistics of this character are available for the past 25 years and more money has been made during the past twelve months than in any similar period in the history of the Lancashire trade. The shipping trade in yarns has suffered as a result of several important markets being closed in consequence of the war.

The following comparative table of exports gives particulars of our yarn trade for the eleven months ended Nov. 30, for the past three years.

	1916.	1917.	1918.
Pounds.	160,967,600	125,133,800	93,063,700
Value...	£12,304,566	£13,427,144	£19,367,451

So far this year on last the chief cases of increased shipments are France, 31,186,000 pounds, and Switzerland, 1,047,000 pounds. The chief decreases are the Netherlands, 31,725,000 pounds; United States, 6,229,000 pounds; Denmark, 3,709,000, and Norway, 3,166,000 pounds. The figures for the Indian markets totaled together show a decrease in shipments of over 8,000,000 pounds.

Labor questions of one kind and another have been very prominent during the year. At the end of 1917 the operatives in all branches of the industry had during the period of the war been successful in securing advances in wages of 35 per cent. In May last a general

application was made to the employers for a further increase of 30 per cent. on list rates. After rather lengthy negotiations it was arranged that the workpeople should receive a raise of 25 per cent. on list rates, bringing their wages 60 per cent. above the level existing in July, 1914. Immediately after that settlement there was considerable unrest among the operative spinners as owing to shorter hours being worked in the mills the nominal advance in wages was rendered useless as at the end of each week the workpeople were coming out of the mills with less money than formerly. The Control Board had decided to abolish the rotation system of unemployment. To this decision the operatives entered their strong protest and they also made a claim for compensation for the work lost as a result of the factories running short time. As they could not obtain any redress a strike began in September which lasted a week. The workpeople returned to the mills on the promise of the Prime Minister, Lloyd George, to set up a tribunal to inquire into their grievances. This tribunal reported against the claims of the workpeople but indicated that in their opinion the operatives throughout the trade had not received advances in wages which were due to them in view of the profits made and the increase in the cost of living. In October the operative spinners and cardroom workers joined hands and applied for an increase in wages of 40 per cent. on current rates, which meant about 66 per cent. on list rates. At a joint conference the masters offered 40 per cent. on list rates. This was refused. Strike notices were issued and owing to no settlement being arrived at, the mills were brought to a standstill on Dec. 7. A few days later Lloyd George intervened and a basis for a settlement was arranged. At the time of writing the strike is still on, but the employers and the trade union officials are considering with their members as to whether the proposed agreement should be carried into effect. It is understood the masters have improved their previous offer of 40 per cent. to 50 per cent. on list rates. Also in October the operative weavers made an application for 50 per cent. on current wages which meant about 82 per cent. on list rates. After consultations it was decided that the matter should be referred to the Government for arbitration and the award has provided for an immediate raise of 50 per cent on list rates.

The outlook for 1919 in the Lancashire cotton industry is very uncertain. At the moment there are no indications of a revival of demand and buyers throughout the world have a thorough distrust of current rates. In the opinion of some leading merchants a further decline in values will take place, but that within twelve months prices will be higher again. A great deal depends upon the peace terms and the speed at which the countries which have been at war can settle down again. Stocks of cotton goods throughout the world are comparatively low and there is every expectation of a large demand especially for European countries before very long. The connections of Lancashire firms are widespread and it is believed that although trade at the moment is passing through a very trying period, the time is not far distant when business negotiations on more normal lines will be resumed and it is safe to say that Lancashire is in a position to secure a big part of the trade of the world in cotton goods.

Important Position of Cotton During War

A Story of Wild Fluctuation Without Restraining Influence of Government

WITH the beginning of the new year all peoples are looking forward to the formal declaration of peace, the work of reconstruction, and a new era in the world's history. Nowhere is the perspective more gratefully viewed than in the cotton trade, and for none, perhaps, does the future hold a brighter promise of continued activity and prosperity.

During the four years of the war, the destruction or ultimate consumption of cotton and cotton goods in relation to total available supplies has probably been greater than ever before. There have, of course, been forced economies in the use of goods which will amount to permanent savings, but there can be little doubt that the supply of textiles in Europe, at least, has been stretched, and darned, worn and used until replenishment as an urgent necessity is second only to foodstuffs. Of course, it is impossible to form any definite opinion as to the amount of cotton that would be required to actively replace supplies of raw material and goods in Europe as they existed at the beginning of the war, but exports of cotton from this country for the four seasons ended with July last fell over 11,000,000 bales below the aggregate of the four seasons preceding. It seems, indeed, that the real problem left to the cotton trade by the war will prove to be that of producing raw material and goods in sufficient volume to meet daily needs and gradually rebuild the reserve supply. For while exports from this country tor the four years of the war were 11,000,000 bales short of the four last years of peace, the four crops planted by the South since the beginning of hostilities have shown an equal decrease, as may be seen from the following comparison:

EXPORTS

Season		
1910-11	7,781,414	
1911-12	10,681,758	
1912-13	8,800,966	
1913-14	8,914,839	
Pre-war period		36,178,977
1914-15	8,544,563	
1915-16	6,191,110	
1916-17	5,739,009	
1917-18	4,476,124	
During the War		24,950,806
Decrease		11,128,071

AMERICAN CROP

Year Planted		
1911	16,068,936	
1912	14,159,078	
1913	14,290,320	
1914	16,738,242	
Pre-war period		61,256,575
1915	12,012,813	
1916	12,664,078	
1917	12,379,239	
1918	*12,900,000	
War period		49,956,130
Decrease		11,300,445

* Estimate based on Government's December figures. All other figures given above on exports and crops are those of the Census Bureau.

Meanwhile domestic consumption responding to war requirements has shown a considerable increase, as indicated by the following figures, which include linters and foreign cotton:

DOMESTIC CONSUMPTION

Season		
1910-11	4,704,978	
1911-12	5,367,583	
1912-13	5,786,330	
1913-14	5,884,733	
Pre-war period		21,743,624
1914-15	6,009,207	
1915-16	7,278,529	
1916-17	7,658,207	
1917-18	7,707,721	
War period		28,653,664
Increase		6,910,040

These figures have been grouped in this manner to show in a rough way the effects of the war. As a matter of fact the cotton marketed during the first year of the war was that planted before the beginning of hostilities in the spring of 1914, and in the table of production this is classed as a pre-war crop. For this reason the figures cannot be regarded as reflecting the change that occurred in available supplies of raw cotton between the beginning of the season 1914-15 and the end of 1917-18. Still in a general way they point toward the actual result. According to Secretary Hester, of the New Orleans Cotton Exchange, the situation as to available supplies at the beginning of the war and at the end of 1917-18, or the first of last August, was as follows:

Visible and Invisible Supplies	End 1913-14	End 1917-18	Decrease
All kinds	6,238,000	3,966,000	2,272,000
American	3,353,000	2,705,000	648,000

And while there has been a perfectly natural concentration of available supplies in this country during the war, there have been no material accumulations, owing to the small crops marketed during the last three seasons. Unfortunately the completed figures of the Census Bureau on distribution for 1917-18 are not yet available, but it is probable the aggregate stocks of raw cotton held in manufacturing establishments, in public storage and elsewhere as of July 31, 1918, will show little change as compared with stocks at the beginning of the war.

During the period of the war the demand was regardless of prices. That from abroad was restricted only by the limitations of ocean tonnage, while that from domestic sources was to the limit of manufacturing facilities. Doubtless mounting values caused economies among civilians. It is not improbable, indeed, that there has been a very considerable decrease in the amount of goods in the hands of ultimate consumers throughout the country, if not on the shelves of retailers, for there has been a general tendency toward hand to mouth operations. But any falling off in the demand from these quarters has been more than offset by the ever-expanding needs of an increasing army. With peace, there will doubtless be a demand to supply more urgent needs that will meet almost any view of values, but the question of prices will certainly enter into any buying to replace reserve supplies or even for day to day uses as freely as in pre-war times. That the world's reserves of goods and raw material will be rebuilt as rapidly as consistent with expediency, however, does not seem to be questioned, and it would seem fair to assume that prices must be high enough to encourage both production and manufacture. It is in this view of the situation that the trade finds the promise of future activity and prosperity, although the New Year finds very marked differences of opinion as to the trend of values. That commodity values, which have more than doubled during the war, will recede eventually, does not appear to be seriously questioned. But it is by no means certain that the inflation so largely responsible for war prices has yet reached its heighth, and even then the decline in commodities may be retarded, in a general sense, by the resisting power of organized labor—a particular in which the present situation is far different from that which followed the Civil War. And another factor which will doubtless enter into the question of cotton values is the attitude and independence of the grower. While yields per acre during the war have been smaller, and cost of production has increased, the returns have been enormous. According to the leading New Orleans authority, the value of the crop grown in 1917, including the seed, was more than $2,000,000,000 and the South received for the four crops marketed during the war nearly a billion dollars more than for the four previous crops, notwithstanding the low prices of 1914-15. The following table shows these estimated values, seed included:

	Value of Crops	
1910	$937,280,764	
1911	998,425,059	
1912	1,114,502,336	
1913	1,134,444,114	$4,184,652,273
1914	749,384,978	
1915	958,200,000	
1916	1,412,860,035	
1917	2,001,682,939	5,122,127,952
Increase		$939,475,679

Whatever these figures may mean in the way of increased prosperity, the South has certainly showed ability to market slowly and to hold determinedly where prices have been unsatisfactory. Indeed, it would not seem improbable, judging from the experiences of the past three years, that the South should carry cotton forward from one crop and reduce acreage for the next if prices fall too low as compared with other values. Should this result in any really prolonged period of relatively high prices, the stimulating effect on other growths would doubtless make itself felt, and that one result of the war promises to be the bringing of potential cotton producing lands under more intelligent and enterprising influences.

Notwithstanding all the extraordinary features and influences of the past year the main fluctuation in prices has approximated those of sentiment regarding prospective supplies almost if not quite as closely as those of a normal season. The bull movement resulting from the small crop of 1917 was carried into 1918 until, on April 4, May cotton in the New York market sold at 34.50. This brought out increased spot offerings, while selling was also encouraged by reports of increased acreage and a favorable new crop start. On the break which followed, December deliveries sold at 22.44 on May 23, but the decline was checked at this level by a withdrawal of spot offerings, although the first two Government crop reports of the season were quite in line with the view responsible for the decline. According to these reports, the initial, or end-May condition was 82.3 compared with a ten-year average of 79, while the end-June report made the condition 85.8, the acreage 37,073,000, or 6 2-10 per cent. increase compared with 1917, and the indicated crop 15,325,000 bales.

During July and August, however, the crop prospect showed the most rapid and sensational deterioration in the history of the trade. The end-August condition was only 55.7 and the crop indication was reduced to 11,137,000 bales, owing chiefly to drouthy conditions, particularly in the Southwest. The advance in prices due to the dwindling supply outlook was equally rapid. By Sept. 3d, December contracts had sold at 36.50, or more than 14 cents per pound above the low point of May; an advance of about 3½ cents a pound for every million bales decline in the crop indication. This advance evidently alarmed the authorities at Washington. Earlier in the year price fixing had been resorted to in the goods market with a view to limiting the profits of manufacturers and insuring

Kelsey Textile Corporation Fabrics

For the

Manufacturing and Jobbing Trades

Bleached Cottons	*Plain & Fancy White Goods*
MUSLINS	GABARDINES
CAMBRICS	PIQUÉS
NAINSOOKS	TWILLED JEANS
LINEN FINISH	SKIRTINGS
INTERLININGS	PAJAMA CHECKS
LAWNS	VOILES
LONGCLOTH	SHIRTINGS
PILLOW TUBING	POPLINS

SEAMLESS AND SEAMED SHEETS AND PILLOW CASES

CONVERSE & COMPANY

SELLING AGENTS

79-81 Worth Street - - - - NEW YORK

PHILADELPHIA BALTIMORE BOSTON CHICAGO ST. LOUIS SAN FRANCISCO

some relation between goods' values and raw materials. The prices fixed for the first three months under the plan had been based upon 30 cents for the raw material. Manufacturers were complaining that their position was untenable owing to the advances in raw material, and when the market was thrown into such an acute state of bullish excitement by the small crop figures, Chairman Baruch of the War Industries Board issued a statement that the cotton situation was to be investigated and threatened price fixing. Immediately the Administration was besieged by Southern Congressmen for a statement as to Chairman Baruch's authority, and in response President Wilson announced that committees would be appointed to look into the position of cotton—that there was to be a fair and reasonable price, and if it was found necessary such a price would be fixed by the Government. The advance was effectively halted by these statements and there were sharp declines, followed by reviving confidence on statements from the Washington committee that price fixing would not be undertaken.

In the meantime the crop indication had increased by about 700,000 bales during the favorable month of September, while the new crop had begun to reach the market, and advances above the 30-cent level met increased offerings. This held the market in check until the armistice was signed, which proved the signal for general liquidation. The goods market was thrown into confusion by the cancellation of orders and, while the Washington committees came to the assistance of the raw material market by an order prohibiting short sales, effective Nov. 13, the low point was not reached until Dec. 2, when January contracts touched 2,453. Since then the market has been nervous and unsettled, but the New Year found prices near the 30-cent mark, with the export movement increasing, while conditions in the goods trade were still far from satisfactory, with every indication that domestic consumption for the season would run behind last year's. For the calendar year just ended exports amounted to only 3,889,072 bales, compared with 4,386,693 for 1917. During the first four months of the season exports were 1,387,823 bales against 1,863,051 last year, but the movement recently has been running well ahead of last year's and shipping conditions seem steadily improving, although opposition to extensions of further credits to the Allies is causing some apprehension in banking circles as to the financing of greatly increased shipments. Domestic mill consumption for the first four months of the season amounted to 1,922,670 bales of lint and 358,237 bales of linters, compared with 2,267,250 and 349,170 last year. The consumption of linters would seem quite certain to show a falling off for the balance of the season, while it would seem that consumption of lint is more likely to show a further falling off as compared with last year than to make up the loss already reported. Not only has civilian demand failed to develop rapidly enough to offset the withdrawal of Government orders, but the mills have labor problems to contend with, and in some instances, at least, are probably feeling the need of new equipment or repairs after the rush work on Government orders.

It is still too early in the season for new crop prospects to exercise an important influence, but it is evident that in at least one very important particular preliminary conditions are more propitious than they were last year. For there have been heavy rains in Texas, breaking a drouth of three or four years' standing, and the good rains reported in the South, generally, mean less danger of drouth damage next year. Another feature which may have an important bearing on the coming crop is the prospect for more and better fertilizer. While it is generally considered that the great falling off in crop prospects last summer was the result of drouth and unfavorable weather, many think the Eastern belt crop would have held up better had potash been available.

POSSIBILITIES OF FERTILIZER

According to reports reaching here from Europe, arrangements have been made whereby vessels returning to this country from France shall carry potash from Alsace instead of ballast, and it is estimated that 500,000 tons may be brought into the country in this manner. If this proposition materializes in time, it may make a very notable difference in Eastern belt crop results next autumn. It is also reported that the Government will sell nitrate for fertilizers in any reasonable quantity, and it would seem, consequently, that the two most important preliminary new crop handicaps of a year ago—lack of subsoil moisture and scarcity of the desired fertilizing agents—have been eliminated. There remains the boll weevil, but there were no special complaints of damage by the weevil last year, and little was heard of other insects except the red spider, which caused some damage. There is, of course, the question of labor, but prices for this crop have been high enough to pay for cultivating, and so far as preliminary conditions go, there would seem no reason why next season's yield per acre should not show a substantial increase.

Because of the high prices it is most generally expected that an increased acreage will be planted this spring. The largest area planted on record, according to official estimate, was 37,458,000 acres in 1913. In 1914, 37,406,000 acres were planted, but owing to the low prices resulting from the first shock of the war and the surplus supply of 1914-1915, the acreage was reduced to 32,107,000 in the spring of 1915. An increase to 36,052,000 in 1916 was followed by a drop to 34,925,000 in 1917 owing to the agitation for increased crops of foodstuffs and the high prices of grain. Last spring, however, the acreage was increased to 37,073,000 acres, according to the preliminary, and only official estimate, as yet available, or within 400,000 of the largest on record. It remains to be seen whether the confidence in continued high prices and an ultimate outlet for every bale produced, which has been responsible for slow marketing at the high price levels of the early season, will not result in a new high record acreage this spring. The official figures in acreage planted for the years immediately preceding and following the war, are as follows:

ACREAGE

1911	36,681,000	1915	32,107,000
1912	34,766,000	1916	36,052,000
1913	37,458,000	1917	34,925,000
1914	37,406,000	1918	37,073,000

SURPLUS OF LOW GRADES

One of the disturbing features of the year was the surplus of low grades in the available supply and the high premiums commanded by the high grade cotton. Undoubtedly the early frosts in the autumn of 1917 made considerable off color and low grade cotton, but the trouble appears to have been quite as largely the result of a concentration of demand on the higher grades. This was due chiefly to two conditions: First, the filling of the market with war goods' contracts calling for high grade raw material, and second, scarcity with consequent independence of mill labor which rendered it very difficult for the mills to utilize grades working to large percentages of waste, even at unusual discounts.

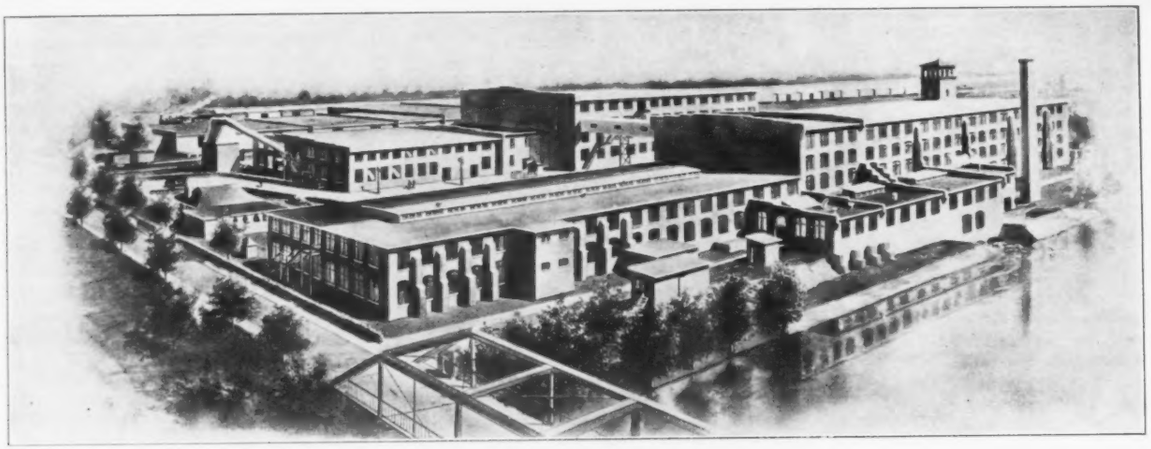
One of the results of the situation in this respect was the development of a most unsatisfactory state of affairs in the futures market. As the difference between cotton grading middling or better, and the lower grades widened, the futures market, particularly at New York, sagged further and further below a parity with the basic grade, middling, arousing widespread criticism. It was similar conditions in previous years of abnormal differences between grades that had led to the investigation by the Bureau of Corporations, and finally to the passing of the Cotton Futures Law, which sought to prevent wide disparities between futures and middling cotton, by providing for standard grades, enforcing their delivery through the Department of Agriculture, and laying down rules for the fixing of daily differences applying to deliveries on New York contracts representing the average of quotations at certain designated spot markets. Theoretically, these measures seemed perfect, but in actual practice they proved no more effective in preventing big differences between contracts and middling quotations, than the methods they had superseded. The trouble was that there was no uniformity in quotations for the same grades of cotton in the different designated markets, and the average was frequently very far out of line with the quotations at one or two markets where particular low grades of cotton seemed to be pressed for sale. The result was that the quotation for the New York contract shaped itself on the lowest price at which any tenderable grade could be purchased in any of the southern markets and the departure from the middling quotation, at times was sensational. An investigation by the Bureau of Markets was ordered, in the course of which nothing was developed to the prejudice of the exchanges, and wher later committees were appointed by the War Industries Board to help stabiliz the market and determine the questio of price-fixing, the Committee of Distribution was given the problem of allocating low grades. Whatever was accomplished in this direction, there has been no narrowing of the differences between the quotations for high and low grade cotton, and even a closer supervision of the quotation for various grades in the designated markets has not brought about uniformity, although the average is now ruling nearer the extremes than it did toward the end of last season. With the withdrawal of Government orders and a gradual easing of labor, the situation will doubtless adjust itself, but it seems that no system can be devised that will insure the maintenance of a theoretical parity between contracts and middling cotton under all conditions. Periods of disparity under abnormal conditions of supply or demand will doubtless continue one of the drawbacks that must be weighed against many advantages and utilities in determining the merits of the futures market as a hedging proposition.

THE YEAR IN FIGURES

	1918	1917	1916
January:			
May contracts, New York	31.58-29.35	19.08-16.55	12.88-11.93
In sight for month	1,295,025	1,253,024	1,105,687
Ginned to Jan. 1	10,434,852	10,039,491	10,636,778
Ginned to Jan. 16	10,570,733	11,137,712	11,751,990
February:			
May contracts, New York	31.39-29.25	16.78-12.50	12.28-11.24
In sight for month	821,137	680,492	882,481
March:			
May contracts, New York	33.23-32.37	19.11-16.48	12.08-11.34
In sight for month	791,462	499,738	818,707
Final ginning	11,248,242	11,363,915	11,068,173
April:			
May contracts, New York	34.50-25.00	21.25-18.72	11.99-11.76
In sight for month	465,177	357,570	697,231
May:			
May contracts, New York	27.18-25.10	21.34-19.35	13.15-11.98
In sight for month	413,156	357,497	648,588
June:			
July contracts, New York		27.58-21.59	13.38-12.50
In sight for month	393,099	360,216	419,011
June condition	82.3	69.5	77.5
July:			
July contracts, New York	28.45-24.38	27.20-23.61	13.17-12.70
In sight for month	418,883	386,393	389,867
July condition	85.8	70.3	81.1
Acreage estimate	37,073,000	34,925,000	36,052,000
August:			
October contracts, New York	35.70-24.80	26.50-21.40	16.33-13.10
In sight for month	306,142	385,299	423,627
August condition	73.6	70.3	72.3
Commercial crop	11,907,000	12,941,000	12,861,538
Visible end season, America	1,932,000	1,504,000	2,235,634
September:			
October contracts, New York	37.25-31.20	24.49-19.95	16.50-14.81
In sight for month	1,016,526	1,094,357	1,680,340
September condition	55.7	67.8	72.5
Ginned to Sept. 1	1,038,087	615,597	850,812
Ginned to Sept. 26	3,773,812	2,512,800	4,081,693
October:			
December contracts, New York	33.90-28.05	27.45-23.60	19.75-16.87
In sight for month	1,640,896	2,036,480	2,600,585
October condition	54.4	60.4	56.3
Ginned to Oct. 18	6,818,628	5,577,156	7,305,966
November:			
December contracts, New York	29.70-26.00	20.50-27.05	21.06-18.64
In sight for month	1,613,091	2,023,363	2,290,686
Ginned to Nov. 1	7,778,899	7,182,674	8,626,289
Ginned to Nov. 14	8,706,970	8,574,316	9,619,056
December:			
December contracts, New York	32.00-25.70	30.73-28.75	20.42-16.13
In sight for month	1,640,000	1,809,353	1,879,944
Ginned Dec. 1	9,565,699	9,716,098	10,356,013
Government crop estimate	11,700,000	10,949,000	11,511,000
Ginned to Dec. 13	10,252,402	10,142,850	10,845,989

Souvenirs and Calendars

A handsome brass inkstand has been received from the Ashland Textile Co., converters of cotton goods, New York City. This will be an attractive addition to a business desk as well as a useful adjunct thereto during many future years.



MILL No. 1

W. S. PARKER, President J. M. JACKSON, Secretary S. F. PATTERSON, Treas. & Mgr.

Roanoke Mills Company

ROANOKE RAPIDS NORTH CAROLINA

SPECIALISTS IN NAPPED

COTTON FABRICS

SPECIAL ATTENTION TO FABRICS FOR THE CUTTING TRADE

Jas. L. Wilson & Co., Selling Agents

NEW YORK PHILADELPHIA

BELOW WE SHOW A VIEW OF

OUR NEW MILL No. 2

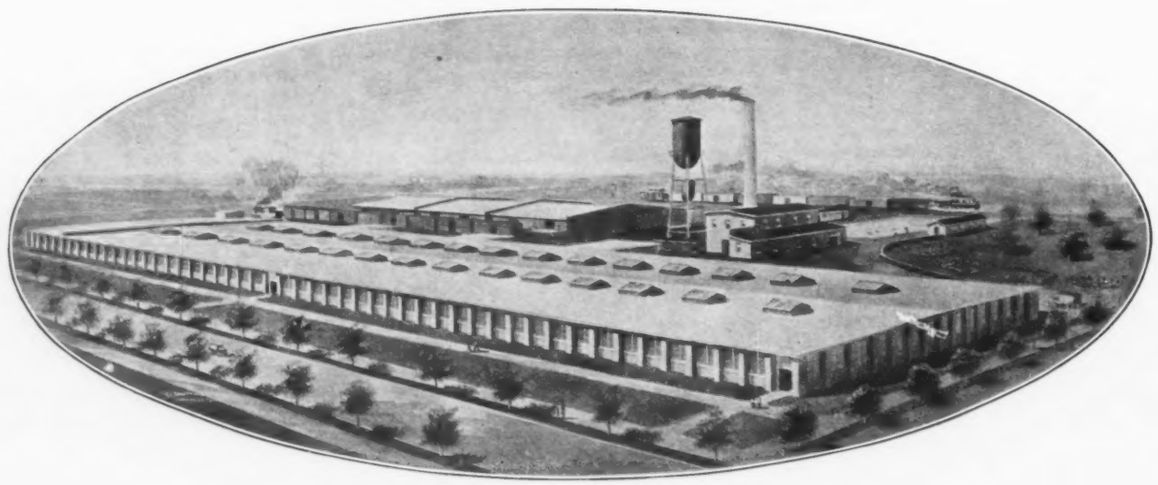
Equipped with **23,184 SPINDLES,** and with every Modern Improvement for the Manufacture of

HIGHEST QUALITY CARDED COTTON YARNS

14s to 26s on Cones, Tubes or Warps

Richard A. Blythe, Inc., Selling Agents

308 CHESTNUT ST. PHILADELPHIA



Effectiveness and Service in Foreign Trade

(*Continued from page 127*)

by military force, but it would be quite as evil if we allowed the power of economic force, ruthlessly exerted throughout the world, to grasp for our sole profit the commerce of the world. Commerce is an evolution, a growth, and it is not commerce in any just sense unless it benefits all concerned. We must serve the world if we are to be on safe foundations ourselves. The mere entering a foreign market by force of cut prices or of off-quality goods or by "dumping" or by untruthful advertising, or by force of government aid or political power is in no true sense commerce, nor will it last. We must not learn the evil lessons from those whose power we have destroyed. We must carry the flag as high in the commercial world as we have carried it before our armies. It means that we are going to play the game like gentlemen and make our methods such as shall survive because they render service.

DEVASTATED COUNTRIES MUST BE SAVED FIRST

Great Britain has done little building for four years past and is reported to be a half million dwellings behind for her population. In Northern France 300,000 dwellings have been destroyed in the devastated area alone. Serbia is probably almost or quite wanting so far as her dwellings are concerned. It seems true of Poland also. It is somewhat true of Belgium. Probably in all Continental Europe a million dwellings must be erected just as speedily as possible, leaving Great Britain out of consideration for the moment. The raw material for these dwelings, the lumber, the cement, the hardware and other things must in no small part come from here. That does not touch the factories at all or the roads or the bridges, the railways, or the public utilities. Most of the French steel industry has been destroyed by the war and France needs locomotives, railways and bridges soon, —she needs millions of tons of steel, needs machine tools and textile machinery. Are we going to sell elsewhere first and let France wait? I put it fairly to you, as a personal proposition. You are a shipper of machine tools or textile machinery. Will you see that Belgium and France get what they need or will you start trade where the need is less even if you profit more? It is not altogether an altruistic question. Upon the spirit of the answer may depend the commercial good will of America abroad in the coming years.

MUST PROVIDE RAW MATERIAL AND ALSO MONEY

We have a second great task before us, namely, that of supplying the world with the raw materials and working equipment. Other countries have materials but few with raw materials have our organization and fiscal power; for that reason we shall be called upon to furnish the major part of them. That of itself is a great commerce, an immense commerce. France estimates her direct physical losses at many billions even omitting what she herself has spent upon the war. There is a large trade for somebody and I think that in our heart of hearts we wish to give it preference. I do not think that we would like to look one another in the face a year hence and say we had not done so or that we would want our children to know we had come short of our helpful utmost now to those who have so suffered.

Now comes a third problem. Who is going to pay the bills? We have a debt over which we would have sighed four or five years ago and now in spite of it, we are going to lend them more, for we must. Shall we let Belgium suffer for lack of funds with which to reconstruct Liege? Shall Lille go idle and the looms of Roubaix cease? There are certain things a gentleman can not do and there are certain things a great nation can not do. We must see that these people are furnished the credits to pay. They can not finance themselves unless we do a large part of it for them. Great Britain with the marvellous resources of her Empire can probably finance herself and her sister nations that form the Empire, but France and Belgium, Italy, Serbia and Poland can not, and in some measure we must furnish them the means.

So we have got to feed many and in large measure furnish them materials and machinery and equipment to start life anew. We must in no small degree also furnish them the credits whereby they will be enabled to pay us. May not then our own future prosperity depend in no small measure upon our doing our part to restore the earning power of those who owe us large sums and who have lost heavily in fighting for our cause. Is it not good business sense to help a generous friendly creditor to find his strength again?

MUST NOT BE A HATED CREDITOR NATION

Now, do you not see, that if we forget ourselves and endeavor to play the part of that disagreeable animal that roots in the earth for what he can get with his eyes bent always upon the ground, do you not see that any large absorption of America in that task might mean piling upon the other side huge credits due us which it would be increasingly hard to pay and as possibly laying up for ourselves a treasure more apparent than real, quite consistent with the loss of our national soul. None of us want to be the hated creditor nation of the world. All of us want to be the servant of the world and we can serve through trade if we will. We must do so if our trade is to last. It must not be written that we are the world's hard creditor in the time of the world's great need. "It is excellent to have a giant's strength" but we must not forget, as Shakespeare wrote, that "it is tyrannous to use it like a giant," We shall get and shall rightly welcome a normal and growing foreign trade coming in a normal unhurried way but we must help.

EFFECTIVENESS COMBINED WITH SERVICE

I am sure it must be evident that America must hold her place in the world of commerce by effectiveness in service. This term, as Dr. Taussig has well pointed out, is larger far than efficiency. It includes much more than the skill with which a factory's operations are directed. It deals not only with the guiding brain but with the generous spirit and it involves the cooperation of railway and steamship, government and industry, to a common end of service. If we cannot serve the world effectively in commerce, it ought to seek for servants who can. We have no right to prosper at the cost of serving them less well than others can do, and if we could impose upon them by some kind of economic power a service less effective than others could render if we would permit them to do so, then we should deserve ill of the world, should be riding for a fall certain to come and to bring dishonor in its train.

WAGES AND PRODUCTION

If it is permitted me to urge a few words of practical advice to American industry at this juncture, I should say to them, beware of the temptation hastily to lay rash hands upon wages. Concentrate thought, purpose and effort on output. Find and seize hold upon all science has said or can say concerning industry. It was largely because Germany made her industries the operating end of her sciences that her commerce grew so fast and powerful in the years before the great war. It was more German science than German wages that make her competition dangerous.

NEED ALL AVAILABLE SHIPPING

Our near future foreign trade is affected by a fourth factor, namely, the capacity of the world's shipping. I am amused a little, I will confess, at the able and honest gentlemen who press upon me that now and speedily we must do something—they rarely say what—to so amend some laws that certain things for which they hope may be speedily accomplished. We have got to feed the world for a while and it is going to take ships to carry the food. We must supply the world with much equipment and raw materials and that is going to take ships to carry them. We have got to keep a large army—large as we call armies—on the other side for some time to come and they will have to be fed and furnished with supplies. We do not know what is behind the Russian veil. A job may need to be done there that we dare not leave undone,—we hope not,—but we must have a considerable army abroad, not half our present one but still a considerable force and they must be fed and supplied.

Soberly looking at it, I think that every ship the world has and can get has all of its carrying capacity taken for the next two years to come. Many of our ships will be used for our growing and developing trade with South America, because a number of these vessels are of a type which it is not economical to send abroad. We should, therefore, have no fear on that score.

A MAGNANIMOUS FOREIGN POLICY

Let me say to you with entire frankness that we are in a certain sense at the commercial parting of the ways. An officer of a great manufacturing concern has recently said: "Democracy in commerce would prompt us to recognize the rights of our foreign competitors and to seek the welfare of those with whom we trade in order that we may continue to share in a welfare to which we contribute; mutual good will inevitably follows and where good will exists war is impossible. It prescribes the continual exercise of what has been called The Golden Rule of Business. Why contemplate, why ever imagine a "Trade War after this War?" For, as Mr. Hurley has said in a formal statement delivered Aug. 23 last:

"It is unthinkable that a nation, fighting shoulder to shoulder with other great democracies, should after the war turn its resources against them for trade conquests of the very kind which were largely instrumental in bringing on the war."

"Unthinkable" is the selfsame word already used by Lloyd George in expressing substantially the same reflection, and Lloyd George, as has been pointed out, may be accepted "in a large sense as the exponent of the best British opinion."

An officer of a prominent New York bank within a few days stated: "Our own interests are bound up in a magnanimous foreign policy. Especially must we let gold go freely when it will. Unless the rest of the world can revive its commerce and industry, it cannot buy our goods or pay its debt to us. International trade is a matter of reciprocal advantage. All the world shares in the prosperity of a country which plays the game fairly. But the game of commerce must not be played in the future as an adjunct of piratical diplomacy—nor must the game of diplomacy be played as an adjunct to selfish business. We must free the world from the German spirit, as well as from the German Armies."

The *Commercial and Financial Chronicle* in its issue of Nov. 9, 1918, charges editorially that we are "to seek, through law and ruling Government, no privilege, or specious gain, in trade that would impoverish a people, race or man."

GOVERNMENT CONTROL LIMITED

It seems possible that there may be needed for the near future some continued measure of control over certain exports both to see that raw materials and equipment are equitably distributed among those who have served us well and that we are not drawn dry ourselves. This should in my judgment be temporary and limited. We must not lose sight of the fact that even our present enemies, Germany and former Austria-Hungary, must have trade if they are to have means of paying the obligations that may be imposed upon them. We cannot act in the foreign field as if we stood alone. It seems to me, however, that Government restrictions are not required further than the temporary and limited control suggested, but that economic and financial laws will provide the guidance needed. The Department of Commerce proposes to help in three distinct ways: by direct propaganda and enlarged information service in all lands; by continuing the admirable work of commercial conservation and standardizing, involving the stopping as far as may be of industrial wastes; lastly by placing through its greatly new industrial laboratories the fruits of science and research at the service of industry.

There is no doubt, humanly speaking, that prosperity lies ahead for America, but there is yet an unsolved doubt as to what use America will make of her prosperity. Do we think of our sister nations as twenty years ago a trust magnate thought of the concerns whose business he would like to grasp? We have outgrown that in our domestic commerce. I do not speak of it as being illegal—it is more illegal to-day in the minds of the business men than on the statute books, but when we get beyond the three-mile limit, are we going to be as far advanced in our thought as we are at home? Can we carry the spirit of American law where the law of America does not prevail? If we do not, we may become fat and rich and possibly win the contempt of the world in so doing. Will our thought be to aid, with a spirit of service running through all, serving those who have served us first? How will the world feel toward America twenty years hence? It all depends. If you can leave to your sons as they go about the earth the knowledge that America rose to a height of marvellous power, financial, military, political, industrial and economical, and she used that power to her own good always, and also always for the good of the world, then your sons can walk as no German can walk, can travel the whole round orb of the globe, among friends knit to one another with bonds of esteem and affection which cannot be broken.

LAWRENCE & CO.

COMMISSION MERCHANTS

BOSTON
NEW YORK
PHILADELPHIA
CHICAGO
ST. LOUIS
SAN FRANCISCO
LONDON, ENGLAND

Selling Agents for

Pacific Mills
Boston Mfg. Co. 1901
Ipswich Mills
Merrimack Mfg. Co.
Whittenton Mfg. Co.
Ipswich Mills (Middlesex Dept.)

MINOT, HOOPER & CO.

NEW YORK
Worth and Thomas Streets

BOSTON
110 Summer Street

SELLING AGENTS FOR

GREAT FALLS MFG. CO. — Satteens
DWIGHT MFG. CO. — Anchor Cottons
LYMAN MILLS — White Goods
HARMONY MILLS — Print Cloths
JOHN P. KING MFG. CO. — Sheetings, Drills

Cotton Technical Section

Year's Review of Cotton Manufacturing

Accomplishments of the Industry—Further Needs—Waste Utilization

By *Charles Mills*

PRACTICALLY every industry in the United States contributed directly or indirectly to the immense volume of supplies necessary to train, equip, transport and maintain in the highest state of efficiency our great army "Over There," and at the same time to feed, clothe, and generally take care of the populations made homeless and destitute by the rank brutalities of the Hun. The great volume and variety of goods contributed by the cotton industry was one of the factors necessary to the winning of the war, and the fine spirit and enthusiasm exhibited by every one engaged in the work was admirable. Many difficulties had to be met and overcome, but no obstacle was allowed to remain in the path of accomplishment. Many things which previously "couldn't be done" were made possible by determined, patriotic men and women with good horse sense.

CHANGES IN MACHINERY ORGANIZATIONS

Changes in organization of machinery were made almost over night in some cases to meet changes in length of staple. Additions to mill buildings and equipment were completed as if by magic. Help was scarce at times on account of enlistments and the draft. Technical difficulties would arise, supplies would run short, shipments would be held up, and to one who did not see through it all, chaos would appear to rule. But in spite of discouragements at the start, in an incredibly short time the machinery was in proper shape and production going forward. So far as we can learn all the demands of the war administration were supplied, and the training and movement of the troops was not delayed on account of slacking in the cotton industry. We are proud of the record of the industry as it relates to the victorious ending of the war.

As demands appear, the mill and machinery organization will be readjusted on a peace basis, and will soon be at work on the varieties of goods for which they were laid out before the war.

The modern American mill is equipped with machinery of the highest efficiency. In point of design and construction the machinery in every department compares favorably with that of any of the same type in the world. This is the opinion expressed by foreigners who have recently visited us in increasing numbers. Other conditions being equal we believe there will be better opportunities in 1919 for foreign business in cotton machinery than at any previous time.

KNOWLEDGE OF FOREIGN TRADE IS NOT GENERAL

There has recently been much discussion of the question of foreign trade. Up to the present time our cotton manufacturers generally have not become very familiar with foreign conditions. If this discussion should result in closer trade relations with foreign countries it will naturally lead to a better acquaintance with their markets and to closer personal intercourse with foreign merchants.

In a general way we know that South American countries do a large volume of business in textiles, but not having had occasion to inquire into details, we are not at all well acquainted with the varieties of goods most in demand in those countries. We heard recently of several instances where desirable orders from South America were turned down by New England manufacturers on account of inability to meet packing specifications. The special machinery required for putting up in specified forms and dimensions was not available.

In some of the South American countries, more especially in the mountainous regions, methods and means of transportation are still primitive. All kinds of goods are "mule-packed" from the port of landing to the interior. Form, dimensions and weights of packages are determined by and specified by the merchant who buys, sells and transports the goods. The merchant will naturally demand from us the same forms, weights and dimensions of packages to which he has become accustomed, and which he is prepared to handle most conveniently. It is obvious, therefore, that in figuring on foreign trade we shall have to take into account foreign conditions and specifications.

In regard to packing it is the same with textile machinery. The methods of packing for domestic shipment are suitable only for all rail, no transfer, carload lots, but are not at all suitable for water, rail, mule-pack and ox-cart transportation, with perhaps numerous transfers.

Another very important factor, also, in the development of foreign business is the policy to be adopted in treating with the native peoples. Our South America neighbors, with whom we hope and expect to do more business have, for more than one generation, been trading for textiles with other countries who have established resident representatives familiar with the languages and customs, also with the styles of goods demanded by the natives. These representatives are required to make a special study of details with a view to ultimately supplying the native populations with what they want. A sound business has been built up with this policy as a foundation. There are present indications of much closer political and economic relations between the United States and the great South American Continent which promise well for the future.

UNITED STATES VS. UNITED KINGDOM

When we consider that in normal times the United States has for many years regularly exported about two-thirds of the annual cotton crop, and that the United States operates less than one-fourth of the world's spindles it would seem as though we had still a large field for further development of the cotton manufacturing industry. The United States with one hundred millions population operates about thirty-three million spindles. Great Britain with a population of about forty millions operates about fifty-six million spindles. Comparing the number of spindles with population it would appear roughly speaking that the United States has not more than enough spindles to supply the home market, and that Great Britain operates a good proportion of her spindles on foreign account.

The United States has now definitely entered upon a career which has already exerted an influence for good on our economic relations with the whole civilized world. What will be the immediate effect on the cotton industry it is difficult to estimate. But we believe the ultimate result will be a great increase in the purchasing power of every civilized country, and consequently a very greatly increased volume of international trade.

TO HELP REBUILD EUROPEAN INDUSTRY

During the past year our chief business has been to supply the extraordinary demands created by the war; demands which have taxed our energies but have left our industrial resources practically unimpaired. We shall be called upon during the year 1919 to devote a part of our industrial energies and equipments to the assistance of those of our Allies whose industrial organizations have been destroyed or greatly impaired. Hundreds of textile mills in the devastated regions of France and Belgium have been destroyed. These will be rebuilt and equipped with machinery as quickly as possible, and the United States will share in this work. In the meantime, or during the period of reconstruction, it will be a part of our duty to furnish such food and clothing as the devastated countries cannot provide for themselves.

Recently the manufacturers of cotton machinery have been engaged in the development of foreign connections. American design and construction we are assured have "caught on." A number of mills in widely separated countries have installed American cotton machinery, which is now fully at work and giving entire satisfaction.

IMPROVEMENTS IN MACHINERY

The main problem with which our machinery manufacturers have to deal is to reduce the high cost of production. This, together with the high cost of stock and supplies, remains a serious handicap in foreign competition. Improved methods and means of manufacture are constantly being evolved with a view to obtaining higher efficiency and greater accuracy of finish. These are twin results and should always arrive hand in hand.

With a view to higher developments in cotton, machinery experiments are going forward with ideas which have been suggested from observation of machinery at work under mill conditions, and which will eventually result in valuable improvement in some departments of manufacture during the coming year.

Comparison of one year's product in cotton machinery with that of the previous year would generally give the impression that progress in improvement is slow. But if we compare the machinery of a decade ago with the up-to-date product, we find abundant evidence of improvement in design, convenience and efficiency. Practical improvements must in the nature of things be accomplished by evolution. Revolutionary changes may occasionally form a basis for the development of improvements, but as a rule end in failure.

A glance through the files of the patent office reveals the fact that thousands of patents have been granted on "improvements" in textile machinery, but practical acquaintance with the history of the machines themselves shows that not 5 per cent. of these so-called improvements have been of any use to the industry. A very large proportion of them never get beyond the experimental stage.

NEED MACHINE TO TAKE PLACE OF THE MULE

A great opportunity exists at the present time for an improvement of the mule, or better still the invention of a substitute for the mule which shall produce the equal of mule-spun yarns. It is well known that high grade soft textures such as are made from mule-spun yarns cannot be produced from ring spun yarns. In the United States the use of the mule has survived only in such mills as are engaged in the manufacture of especially soft yarns, or fabrics which demand especially soft, smooth and lofty yarns.

For ordinary purposes the ring frame has long taken the place of the mule on account of its greater economy in labor and space occupied. The skilled labor required to operate the mule has in great degree disappeared. If in the future we are compelled to compete in all lines of cotton manufacture, we must be prepared with a machine which will embody the advantages of the ring frame in respect to economy in labor and space and the technical advantages of the mule which make possible the production of soft yarns. Mule yarns are in a special class as regards character and cost. The problem is to produce yarns of a character equal to mule yarns at the cost of ring yarns.

In New England we are still dependent to a large degree on immigration for help in the textile industries. What the effect of reconstruction will be on the previously oppressed populations of Southern Europe we cannot attempt to estimate, but it is reasonable to suppose that the responsible Governments of those countries will endeavor by all means possible to induce the populations to remain in their native countries. So that unless we provide superior inducements in the line of living and working conditions it is likely that immigration will slow down.

In many departments of manufacture the United States has in the past been

WOODWARD, BALDWIN & CO.

43 and 45 Worth Street, NEW YORK

SELLING AGENTS FOR

SOUTHERN COTTON MILLS

MANUFACTURING WELL KNOWN BRANDS OF

SHEETINGS SHIRTING DRILLS DUCKS

FOR HOME AND EXPORT

All Weights and Constructions of Print Cloths
and Fine Cloths in Plain and Fancy Weaves

OUTING FLANNEL AND ROMPER CLOTH

BALTIMORE ST. JOSEPH SAN FRANCISCO CHICAGO
ST. LOUIS PHILADELPHIA BOSTON SHANGHAI, CHINA

T. HOLT HAYWOOD DEPARTMENT

FRED$^{K}_{=}$ VIETOR & ACHELIS

Commission Merchants

65-67 Leonard St. New York

COTTON FABRICS OF ALL DESCRIPTIONS

for

Manufacturers -:- Jobbers -:- Converters -:- Exporters

careless of waste. In some lines of industry we have reached a point where everything is saved but the squeal, and that is sometimes canned. We have hardly arrived at this stage in the cotton industry. We do not destroy our cotton waste any more, of course, but we ship large quantities, about 20,000,000 lb. per month, to the other side where a good proportion of it is manufactured for United States account.

The last few years have shown greater interest in waste manufacture in this country. A few enterprising mill men have made special investigations of the waste industries abroad and returned with the conviction that it is good business. Machinery men have made independent investigations in the same line, and have made similar reports.

A number of waste mills have recently been established in the North and in the South and are now successfully manufacturing a variety of goods, using both hard and soft waste. In some cases the waste mill is adjacent to a group of regular cotton mills and is controlled by the same corporation.

Up to the last few years our cotton manufacturers have had neither the time nor the inclination to interest themselves to any extent in the manufacture of waste. It is but recently that the possibilities have been brought to their attention. Many attempts have been made to use waste mixes in the regular lines of cotton manufacture, using the regular organizations of machinery with a view to economy, but most of these attempts have ended in trouble, expense and disgust. It has been often demonstrated that the successful manufacture of cotton waste demands separate and special mill and machinery organizations. Also a separate market for the goods manufactured.

We confidently expect to see increased interest in cotton waste manufacturing and a proportionate reduction in exports of cotton waste from the United States.

The machinery manufacturers have taken up this branch of the business with enthusiasm. Regular lines of cotton machinery have been redesigned and adapted to the requirements of waste manufacturing. Special new designs adapted to waste have been built. Experiments with many different combinations of waste are being carried on with a view to the utilization of other waste fibrous material such as flax, jute, silk, etc., using the same special waste machinery. Some of these have been remarkably successful in demonstrating the possibility of spinning from mixtures of cotton waste with flax and jute.

Experimental departments recently established are equipped and maintained by machinery manufacturers for the purpose of demonstrating to prospective customers and to enquirers the possibilities in waste manufacturing. Also these departments are engaged in developing improvements in the regular lines of cotton machinery.

By such means the United States is keeping pace with the times and gaining a foothold in foreign markets in competition with concerns long established in the foreign trade.

COTTON MACHINERY MAKES YARN FOR SILK POWDER BAGS

Among the many remarkably interesting achievements in adaptation to war conditions in the textile industry, we wish to make record of one which is deserving of recognition. Immediately following the declaration of war by the United States there came to the spun silk industry an urgent call for vast quantities of powder bags for the artillery. These bags were to be made of silk, any other fibrous material being objectionable on account of residue of ash fouling the breach after discharge.

The spun silk manufacturers realized immediately that the aggregate of silk spinning machinery in the United States, adapted or which could be adapted to this purpose, was insufficient. Representatives from every concern in the silk spinning industry were called together in conference, and a committee was voluntarily formed to solve the problem and see the matter through.

All the silk machinery of the country that could be used was commandeered for the work. Additional silk machinery of the proper type could not be procured. Experts in the handling of silk were sent out by the committee at its expense, and without loss of time in discussion with the Government, to investigate the possibility of adapting cotton machinery or cotton waste machinery to the production of spun silk. Very fortunately the initial experiments made under the supervision of experts were successful and very gratifying to the committee.

Following the recommendations of the committee the requisite cotton machinery was commandeered by the U. S. Government. Additional machinery was also installed and organized for the manufacture of the silk yarns from which the powder bags were made.

The energy and adaptability displayed in meeting the demands of the war for all kinds of cotton textiles in 1918 will carry the cotton industry far. The industries generally are returning to a peace basis, and with this same energy devoted to the problems of peace there is every indication that the cotton manufacturing industry will share in the general prosperity which we believe is scheduled for 1919.

Larger Field Developed for Narrow Fabrics

War's Necessities Proved Value of Webbings for Many New Uses

By *Samuel Brown*

WOVEN narrow fabrics have played an important part in meeting war requirements as substitutes for leather. Difficulties in the construction of such goods, which prior to the war seemed insurmountable, have been wholly overcome. Heavy fabrics have been made for a variety of military uses which have been superior in many respects to leather, and have doubtless come to stay. Almost every available heavily constructed narrow fabric loom in the country has been employed on such goods, and very many light looms have been changed over and strengthened to meet the requirements.

War necessities have afforded opportunities to test out the practicability of such leather substitutes, and many advantages have been found in their use. It has been demonstrated beyond all doubt that they withstand the test of rough wear and tear; weather exposure has not been nearly as destructive on them as on leather, and the flexibility has not been impaired thereby; the long lengths of webs available from the looms have made it possible to dispense with many joints which would be necessary if leather were used; and the initial cost of these goods is considerably less. The results of these rigorous tests have been closely watched by users of leather for other purposes, and new demands are constantly springing up to take the place of Government contracts running out.

AUTOMOBILE TOPS AND BRAKE LININGS

The greatest demand comes from the manufacturers of automobile tops. Manufacturers of these articles have found out that woven webs are not only much cheaper than leather and better in many ways, but that the colors of the tops can be matched. They have been quick to see and take advantage of this use. Heavy webs are also used for brake linings on cars, and the demand is very much greater than the available supply, chiefly because of the limited number of looms in use which are heavy enough to make such goods. The demand is mostly for webs of from 1¼ inch to 2½ inch width.

Many of the webs required for automobile tops are almost identical with the webs described in the Government specifications for army uses in the Feb. 9, 1918, issue of TEXTILE WORLD JOURNAL, except that they are generally lighter in weight. They are mostly of double cloth construction, with round edges, and are made with two face and two back harnesses, with a binder to fasten the face and back cloths together, and a harness for the gut or filler warp.

In order to get the proper clearance of threads when weaving these goods, the warps should be correspondingly divided, which arrangement will allow for the carrying of very heavy weights on the face, back and gut sections. Fig. 1, which shows the harness and cam draft of one of these will answer for this class.

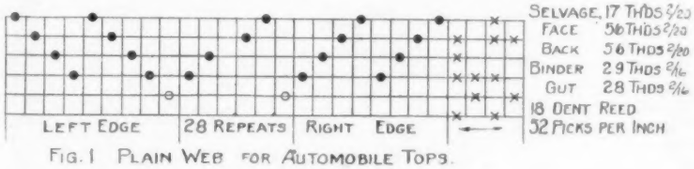


FIG. 1 PLAIN WEB FOR AUTOMOBILE TOPS.

SINGLE CLOTH SUBSTITUTES

The difficulty experienced in getting enough looms of sufficient capacity to make these goods has brought about the construction of single cloth fabrics, such as can be made on 4 pick looms as substitutes. These webs are being made on 4 harnesses operating 2 up and 2 down, and the warps are likewise divided so that each harness has an independent warp. It is somewhat difficult by this method, however, to get the desired firmness without undue bulk, as the more open twill weave here employed necessitates the packing of considerable weft in to compensate for the more closely knit plain weave. Fig. 2 shows harness and cam draft.

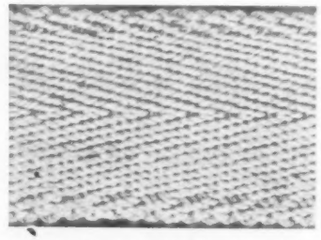


FIG. 3—SINGLE CLOTH SUBSTITUTE

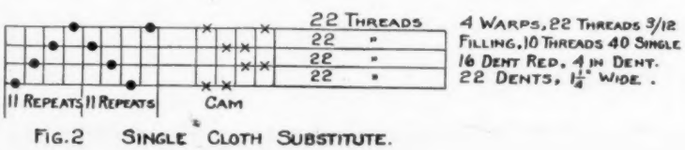


FIG. 2 SINGLE CLOTH SUBSTITUTE.

WEBS WITH BUTTON HOLES

Quite a number of inquiries are being made at this time for webs about one inch wide, having button holes woven in at intervals, and made to match in color the webs used for automobile tops. The general construction of these goods is similar to the plain wide webs, except that they are somewhat lighter in weight. It requires special loom attachments to make these goods. The button holes can be woven in at any desired place, and at the same high speed at which the plain part is made.

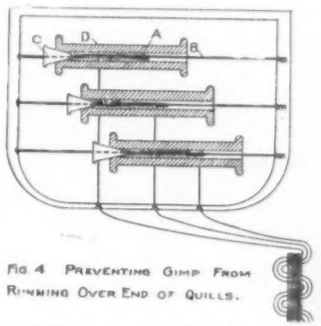


FIG 4 PREVENTING GIMP FROM RUNNING OVER END OF QUILLS.

This is accomplished by the use of two banks of shuttles, both of which are running in the same direction at every pick of the loom, but only one of which (the upper) is engaged with the cloth; while the plain part of the goods between the button holes is being woven, the other bank running "dead" underneath the goods. When the button hole is about to be made, two distinct sheds are formed, and then the two banks of shuttles are engaged; the upper bank on one-half of the shed, and the lower bank on the other half, until the completion of the button hole. Then one shed is

PARKER, WILDER & CO.

BOSTON CHICAGO NEW YORK

SELLING AGENTS FOR

Naumkeag Steam Cotton Co.
Monadnock Mills
Talbot Mills
Gonic Mfg. Co.
Belvidere Woolen Co.
Windham Mfg. Co.

Boott Mills
Stirling Mills
Cocheco Woolen Mfg. Co.
Chas. A. Stevens & Co.
Lincoln Woolen Co.
Homestead Woolen Mills

D. Goff & Sons

PEQUOT WIDE COTTONS

Bleached and Brown Sheeting

PEQUOT SHEETS AND PILLOW CASES

Sheets and Pillow Cases

BOOTT MILLS

Ducks, Drills, Twills, Repps, Tire Ducks, Scrim, Grain Bags
Absorbent Crash, Combed Yarn Fabrics

TRADE MARK

Satin, Marseilles, Crochet and Dimity Quilts

Staple and Fancy Woolen Shirtings Uniform Cloths
Woolens Cloakings Worsted Dress Goods
Men's Wear and Women's Wear Serges
Velours and Broadcloth

again formed instead of two, and the upper bank alone resumes the operation of weaving another section of plain strap.

This process of changing from single to double shed is accomplished by the use of a specially designed cam jack, made in two sections, to which are attached two separate harness frames in each of which one side of the web is drawn. While weaving the plain part of the web, both sections of the cam jack operate side by side as a single jack from the same cam, but when the button hole is made, a device for spreading each pair of jacks is operated, and the two sheds are formed. At the same time a lever movement changes the position of the lay so that the two rows of shuttles properly engage the two sheds.

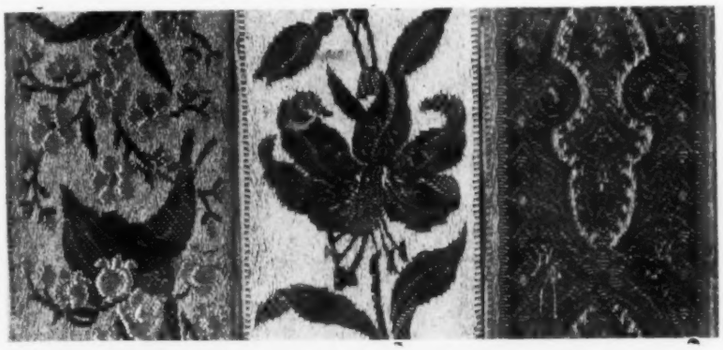


FIG. 5. GENERAL CHARACTER OF NEW WOVEN SATIN SUSPENDER WEBS

GOODS FOR UPHOLSTERY TRADE

Now that the war is over and manufacturers are able to turn their attention to other things than Government requirements, there is much sampling and many experiments along a variety of lines with a view to keeping machinery fully employed. Interest is exhibited in some quarters just now to meet the requirements of the upholstery trade for gimp trimmings, to which many of the lighter narrow looms can be adapted with reasonable changes in some of the minor details of construction. This is a field offering a large range of possibility in weave effects and combinations of colors, and one which is also very profitable when proper care is taken to respond promptly to the required changes of the market.

CONTROLLING GIMP IN SHUTTLE

Experiments now in progress are mostly with serpentine gimp trimmings, which require considerable skill and patience in the proper manipulation of the gimp used in the shuttle. Various experiments have been tried to properly control this wire-like material when it leaves the shuttle, so as to prevent it from running over at the end of the quills. A very effective method is shown in Fig. 4, where gimp is delivered from three quills.

The shuttle used is about 6 inches long and travels to and fro over a two-inch reed space. It is easily seen that a shuttle traveling over about 8 inches, with the necessary long lay sweep, and making goods only about ½ inch wide, will throw off considerable weft. Should this gimp weft be allowed to become the least slack at any time during this travel across the goods it would have a tendency to roll over the end of the shuttle quill.

To perfectly control this possible slackness, a long spring A is threaded on the quill wire B and fastened at one end, while to the other end of the spring is attached a cone-shaped wood spool C, on which the quill D, which has a taper hole at one end, is fixed. The quill wire itself is held snugly under pressure by a spring at one end. When the weft is drawn from the quill in traveling across the shed, the slackness is immediately returned to the quill by the action of the spring.

Each thread is carried through a different eye in the shuttle bow, and so is laid uniformly side by side in the goods, thus forming the serpentine effect as shown. In this manner very effective combinations of color can be obtained by both warp and weft. The shuttle can be arranged to carry two, three or four quills as desired.

HIGH GRADE SATIN WEBS

There are at this time indications of a revival of high grade satin webs for the suspender trade. Such webs were very popular some twenty-five years ago, particularly for the holiday trade; but they were crowded out by the introduction of fancy embroidered effects and hand painted designs, some of which were very showy and well adapted for display goods for the individual box trade. But the latter lacked the finish and weaving properties of the woven webs, and the public is getting tired of them.

The goods now being sampled are full jacquard effects, and are mostly made with a three shuttle figure on a silk ground, and have a pure white satin back made of 2/120 yarn. The range of figures and effects is practically unlimited.

The Mill-Village Laundry

Reduces Absence from Work— Prices Charged Cover Cost

ALTHOUGH the war is over, the demand for the product of textile mills will undoubtedly suffer little slackening. It is necessary that the maximum output of the mills be realized, and to accomplish this a full working force must be assured at all times. Consequently anything that tends to give an adequate and steady supply of labor is of timely interest in this period of readjustment and reconstruction.

Because, in many instances, textile mills are located in small communities, where the mill workers constitute a large proportion of the population, and because, in many cases, the entire family is employed in the mill, some of the home problems are difficult to solve. One of these problems is that of handling the family washing. In mill towns of this class it is next to impossible to employ a wash woman, and it, therefore behooves one or more of the female members of the family to lay off from work to attend to this duty. Many of the mills have been handicapped, on this one account alone, by a shortage of labor on certain days of the week.

After carefully considering the question a number of textile mills have decided to install a complete laundry equipment to take care of the family washing of all of their employes.

LAUNDRY AT LA GRANGE, GA.

At La Grange, Ga., there are located five mills—Elm City, Hillside, Unity Spinning, Unity Cotton and Valley Waste Mills, all controlled by the same management. The officials of the Elm City Mill took this matter in hand and have established a laundry in a separate building, known as the Elm City Laundry. A complete equipment of modern laundry machinery has been installed, consisting of 3 Washers, 2 Centrifugal Extractors, 1 Truck Dry Room, 2 Drying Tumblers, 1 Marking Machine, 1 Universal Press, 1 6-roll Flat Work Ironer. The equipment was purchased from and installed by The American Laundry Machinery Co., Cincinnati, Ohio, who have made an extensive study of the requirements in mill village laundries.

A competent laundry superintendent was employed to take charge of the plant and educate the employes in the operation of the various machines. In addition to the laundry superintendent, this plant employs three markers and assorters, two delivery men who operate an automobile truck for collection and delivery of the work, one wash-man and helper, and seven negro women.

The people employed in the laundry are paid a bonus of 20 per cent. if they put in a full week's work; if any time is lost, a 10 per cent. bonus is paid them. This includes the manager of the plant. They handle the entire family wash on the rough dry plan at 5 cents a pound. The flat work or bed and table linen is ironed and the wearing apparel is starched and dried ready for ironing. Blankets, bath towels, underwear, stockings, socks, etc., are dried in the drying tumbler and are ready to be used without any further finishing.

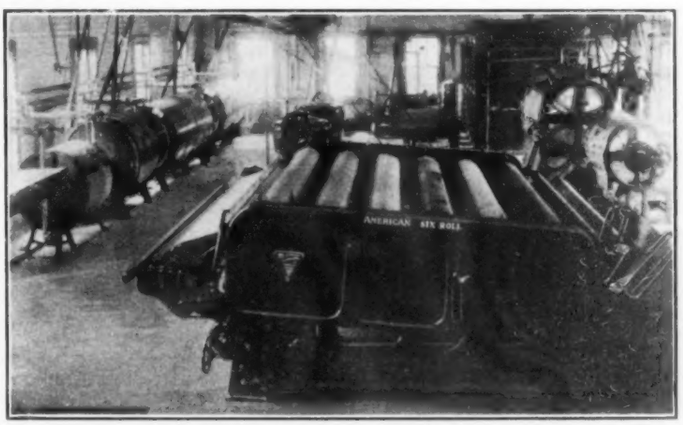
The mill furnishes the steam, water and power for operating the plant, and the building in which the laundry is located, it being the intention to charge the laundry the actual cost of these items.

The record of the first five weeks of operating this plant is interesting, as it shows a gradual increase of the number of washings received. The first week the plant was in actual operation it handled washings for 134 families; the second week this increased to 199 families; third week, 235 families; fourth week, 257 families, and fifth week, 295 families. There is every reason to believe that this work will continue to increase right along, for at the time these figures were compiled they were only handling the washings of 50 per cent. of the families at the Elm City Mill, 15 per cent. at the Hillside Mill, 15 per cent. at the Spinning Mill and 10 per cent. at each of the Unity Cotton and Valley Mills.

It is not the intention of the mill to make any money out of the operation of the plant, but to operate it at cost and give the employes the benefit of the lowest possible charge for the work. No cash is handled by the laundry plant. A record of the bundles handled is sent to the mill in which the customers are located and the amount of the washing is deducted from the pay envelope at the end of the week. There is no necessity of the laundry employing any office force whatever.

WORK CARRIED FURTHER

At another mill in the South they have carried this work a little further, and instead of simply starching and drying the wearing apparel, they finish the entire washing, starching and ironing all pieces. Their basis of charge is 5 cents per pound for rough dry and where the bundles are finished completely the following table of prices is issued:



INTERIOR OF ELM CITY LAUNDRY, WHERE THE FAMILY WASHING IS DONE FOR THE EMPLOYES OF FIVE LA GRANGE, GA., MILLS

Not over 5 lbs.	$0.50 per week
5 lbs. to 10 lbs.	.85 per week
10 lbs. to 15 lbs.	1.35 per week
15 lbs. to 20 lbs.	1.80 per week
20 lbs. to 25 lbs.	2.25 per week
25 lbs. to 30 lbs.	2.70 per week
30 lbs. to 35 lbs.	3.15 per week
35 lbs. to 40 lbs.	3.60 per week
40 lbs. to 45 lbs.	4.05 per week
45 lbs. to 50 lbs.	4.50 per week

This takes the labor of ironing the wearing apparel off the mill employes. At the present time this particular laundry is handling from 140 to 150 washings per week, total weight of washing running from 1,500 to 1,800 pounds, of which only about 1 per cent. is handled as rough dry, the balance being finished work. One man is kept busy calling for the delivering the work in the village, using a pushcart for that purpose.

This latter laundry employs eleven people, including a forelady, one wash man who also attends to the boiler, and a delivery man. Here, too, no cash is handled by the laundry. A voucher is made out for the amount of the laundry charge and is turned over to the

mill cashier, who in turn deducts this amount from the weekly wage of the employe.

FEWER ABSENTEES FROM WORK

The operation of these mill village laundries has undoubtedly proved of benefit to the mills, as the reports received from the managers show that they do not have nearly so many absentees as they did before the laundries were installed.

While the owners of these mills in a sense have a selfish purpose in view, in that their object in operating the laundry is to keep the mill hands at work, still it is not their desire that the laundry shall be operated with profit. A strict account of the whole operation is kept. The laundry is charged for rent, fuel, light, water, etc. The labor and laundry supplies expenditure is likewise charged in this account.

It is undoubtedly true that these laundries not only relieve the mill employes from the drudgery of handling the washing in the home, but will have the effect of showing the employes that their employers have their welfare in mind at all times. There is no question as to the success of this idea in the mills where laundries have been installed. The results are extremely satisfying to the owners and, in most instances, the laundries are operated at cost, without any loss to the owners.

Undoubtedly there are many mills throughout the country where the owners realize that steps must be taken to overcome the annoyance and inconvenience of having their employes lay off and do the family wash. The question of the mill village laundry should be given very careful consideration in such cases and mill owners will find the engineers of the American Laundry Machinery Co., Cincinnati, Ohio, ready at all times to render assistance and give advice on this proposition.

Fine Goods Mills on Coarser Fabrics

Some Organizations Temporarily Unbalanced —Labor and Textile School Suggestions

By *Laneshaw*

THE best grades of cotton were largely used during the year for the manufacture of balloon, gas mask and airplane cloths. These fabrics had to meet unusual requirements and be absolutely free from nits and the small leaf that are hard to extract during the carding and combing processes. Good middling cotton could not be secured for ordinary purposes, and the mills had to be satisfied with middling to strict middling cotton. The staple of the cotton was good enough for the manufacture of fine yarns, but the making of very fine lawns and organdies requires cotton of good grade as well as staple. The making of organdies and other fabrics requiring yarn sizes from 80s to 100s, and filling sizes from 125s to 150s, was practically discontinued. In most all fine goods mills the finest yarn made during the last two years has been around 60s, and filling around 110s.

Mills that were equipped for the making of fine yarns and fabrics had to change their equipment in order to process the coarser yarns, because while 60s was the finest, many of them secured a market for fabrics requiring 40s and 30s, and in many cases good orders were secured on fabrics requiring 20s yarn, and as low as 10s filling. Very few of the fine goods plants made carded yarns. The shift from fine to coarse yarns unbalanced many mills, because the weaving of coarse fabrics, while it did not affect the production of the weave room to any extent, affected the card room so much that night shifts had to be employed. At the end of the year most all these mills were running night and day shifts in order to preserve the balance among the carding, spinning and weaving.

The night help demanded and received better pay than the day help, and, while the quality of the night product fell below the quality of the day product, it was profitable for the mills to run nights because it meant a larger production to take care of the overhead. At first it was rather difficult to secure help for night work, but the pay was so attractive that many hands were secured from less attractive positions.

The line of coarse yarn fabrics developed during the war enabled the weave rooms to run with a full complement of help, because the weaves were easier, the yarn and filling breaks fewer, and more looms could be run by the weaver. There is now a surplus of help, owing to the high wages attracting help from other industries who found mill work far more congenial than they were led to believe. When the fine goods mills go back to the making of high-class fine yarns and fabrics, night work will surely stop, unless a good market is found for the product. There is already a sign of changing to the finer grades, and from the present condition of the labor market one can readily see a surplus of cotton mill help if night work is stopped.

SUGGESTIONS ON LABOR PROBLEM

Red Cross auxiliaries were organized in many mills, and a large number of women were brought together once or twice a week in large, airy, well-lighted rooms. Sewing machines and cloth were provided, the whole expense being borne by the mills. In large mill centers a spirit of good-natured rivalry existed between the different auxiliaries. The work performed by the women operatives was of great value to the Red Cross organization. Operatives from different departments got to know each other better. A community spirit was created, and a feeling of loyalty to their employers was engendered.

Most every mill corporation has some idle land. In many mill centers this idle land has been plowed, harrowed and fertilized for the workers, the expense being borne by the mill. Operatives were invited to plant gardens. During the summer it was a pleasing sight to see the operatives working the gardens during part of the noon hour. These war gardens meant a great deal to the operative. The product was a great help to food conservation. The wise mill manager will continue the garden policy in peace times. It means a small outlay each year and big returns in loyalty among the help.

The financing of Liberty Bond sales on the easy-payment plan necessitated the increase of the clerical force in the office, but the decrease in the turnover of the help offset the expense. In one weave room of 2,400 looms, a total of $10,500 worth of bonds were sold on the third loan, and $18,000 on the fourth loan. A total of $40,000 worth of bonds were sold throughout the mill, and the operatives of this company are purchasing over $1000 worth of War Saving Stamps every week. One cannot imagine much change of help in any mill where such a spirit of loyalty is shown, and this is only typical of all mills throughout New England.

A few years ago the writer attended the graduation exercises in a New England textile school. One of the speakers was a former mill operative who had risen to the position of Vice-Consul in a German city. His talk was on textile and vocational schools as he saw them in Germany. He told of the support given such schools by the Government. It brought to mind the difference in the treatment accorded the textile schools in the State of Massachusetts.

After the trustees of the schools had built up splendid textile educational institutions they were frowned upon by some members of the state legislature on account of a technicality in some law that had no direct bearing on the schools whatever. As the matter stands today, the status of the textile schools in Massachusetts is still undetermined. If some of the wise men in the state government would visit the textile schools any evening during the winter months they might learn something about the value of such schools. They would see the raw cotton go through the different processes and be converted into the finished woven or knitted fabric, every process being done in a scientific manner under the supervision of experienced practical instructors. They would see exactly the same machines as found in a mill, operated under exactly the same conditions as they are operated in the mills. They would see French, Polish and Portugese operatives learning to be better workmen under the supervision of one of their own race, a thoroughly practical man at his trade. They might be impressed with the value of these institutions to the state and nation through teaching workers to be more skillful and Americanizing the foreign born.

The textile school has been a great factor in raising the standard of mill work, and will become a greater factor if it receives the support it deserves. There is not a single woven or knitted fabric produced in European schools or mills but that can be produced in the textile schools or cotton mills of this country. All encouragement should be given textile and vocational schools. They should not be allowed to become the sport of cheap politicians.

Spinning Developments in England

Yarn from Noils and Cotton Spun on Cotton Machinery

By *J. A. Hunter*

THE presumption is that top makers will return to something near their old methods when they are again permitted a free hand with wool. That is to say, they will buy according to their own judgment such wools as when blended together will produce tops of a standard set by themselves and approved by their customers. Government control of the top trade has virtually abolished wool blending. Tops have been made from straight wool, and inferior grades, instead of being blended in with better samples, have been left for consumption alone. Thus the mill working on Government orders has been given usually a good spin, and the civil trade has had to make shift with such as was left.

Spinners have been left in acute uncertainty as to the quantity of tops they would get in a given period, and have lost much working time in waiting for deliveries. They have been even more uncertain as to the quality that would be supplied under any given name. What they have bought as, and at the price of 70s have proved to be indifferent 64s. Fifty-sixes have been deliberately sold as 58s, and tops described as long have been short and weak as often as not. The spinner has perforce had to put up with such kinds as the authorities chose to send, and to make the best of the situation by charging a high price for his yarns.

The margins earned in civilian trade have amply covered this minor plundering on the part of the Department, and have handsomely compensated all other forms of war expense. The 2-48s yarn, which was 3 shillings at the outbreak of war, is easily worth 12 shillings 6 pence, which is to say that the spinners' margin is as large as the cost of the tops. The tax-master takes 85 per cent. of the proceeds, but even 15 per cent. of these gains means high profits. Prices will have to come down, but so long as manufacturers obtain heavy prices for their goods spinners do not see why they should be the men to forego the money. The position is fantastic, but it is not of spinners' making, and the remedy will apparently come gradually.

DIFFICULTIES CONNECTED WITH RATIONING

Difficulties of the moment connected with short rations of wool, and the cancellation of official contracts, engage full attention and make future movements uncertain. Spinners are more likely, however, to return to their old ways than to adopt the new ones forced on them by the exigencies of the war. At the bidding of the Department they have put together in the same yarn mixtures of tops regarded as the most incongruous since the world began. Botany tops have been drawn into the same sliver as coarse crossbred, for the purpose of special cloths, and the authorities being short in some cases of the single quality necessary to make a given yarn, have sent down to the mill tops which when mixed in drawing would give approximately the average. Thus to make 24s, spinners have received tops of all qualities from 56s downwards, approximately averaging 40s in the end.

To surmount the difficulty of short rations, spinners have used their own ingenuity in employing unrationed hairs in place of wool. Alpaca and camel hair have been forced to unheard of prices by their new employment as warp for serges. Crossed with a fine woolen filling an excellent wartime serge can be made, but it is not supposed that these substitutes will be favored when wool is in plenty.

Union worsted yarns in which one end of cotton is twisted with a thread of worsted have been exceptionally remunerative to make, as conditionally upon the quantity of new wool being low enough these yarns could be exported without permit. In the home market the yarns have been used on a large scale to make speckled gabardine raincoat fabrics, and there is a likelihood of these continuing to be made so long as wool is exceptionally dear.

A competitor with worsted yarns for knit goods, dress goods and some coatings, is growing up in mixed yarns from noils and American cotton, mule-spun in Lancashire on cotton machinery, and these replace in large measure the former imports made from the Continent. The mixtures are made of from 5 per cent. of wool noils upwards, and largely with about 50 per cent. .

Freedom in Yarn Prices Curtailed by Government

Large Volume of Business Gives Place to Uncertainty Under Control

AFTER nearly six months of free-for-all competition, during which, on account of the war demand, prices had mounted to unheard of heights, the cotton yarn market in late June passed under the composing influence of Government price fixing. During the open season the trade did a thriving and driving business, so far as that was possible, in spite of the numerous obstacles that war, weather, incompetent transportation, embargoes, fuel shortage, shortage of labor and influenza placed in its path. The year was a profitable one and in the beginning strenuous. Once it was harnessed to price fixing it became largely a matter of delivering the goods and attending to collections. As to profits the price lists fixed by the Government had provided with a generous hand.

The year 1918 opened with 2-20s Southern skeins at 54 cents, and firm at that figure. This quotation was regarded as a relatively good price in the minds of spinners who had become accustomed, before the world went to war, to paring the cheese pretty closely in order to secure a fair commercial profit. Cotton was on its upward flight that was to develop into the highest altitude attained by that staple since the Civil War. Government operations had already become the controlling influence in the goods market, and prices of merchandise were feeling the urge that finally made them about what the seller saw fit to ask or what the buyer was reckless enough to offer. Government essential needs had not in the first weeks of the year expanded to an extent that took the reins from out the hands of the civilian buyer, and competition between the two was strengthening his position in a way that warmed the cockles of the spinner's heart. There were prospects in the first month of the year that civilan consumption was about to be abridged by the needs of the Government, and that the energies of spinning mills, in common with the activities of other industries, must figure in the winning of the war to an extent as amazing as it was unexpected.

The winter months of the year were especially trying to transportation, and delays were so general that only the delivery of yarns on Government account could be relatively depended on, and shipments by express became a feature to be reckoned with. The matter of deliveries had become such a bugaboo that any measure that offered an even chance of relieving the transportation embargo at any cost found advocates. The coal conservation order, enforced at this time, cut down the current production temporarily, but did not influence the market to any degree, as the backwardness of transportation was presumed to be piling up yarns at the mills and the market was living from hand to mouth on shrinking supplies, insufficient for its most pressing needs. Buyers in desperation were placing duplicate orders to replace yarns that were weeks or months overdue. The market remained firm, but stationary. The spinner's position was not an enviable one during the hard winter weather, and the question came up that the buyer should divide the responsibility. Factors argued that it would take the Bank of England to finance the yarn proposition at that trying period, and that buyers should assume a part of the burden.

Members of the yarn trade should be pastmasters in the art of fighting trouble because of the experience acquired last winter. February found the mills sold as far ahead as it was deemed wise to operate; the market was quiet, prices firm, and a preference was shown Government contractors. Transportation began to improve early in the month, tension relaxed and market activities subsided while the trade took stock of future probabilities—the draft, the fuel situation, the uncertainty with regard to Government requirements, and the growing depletion of labor—all unknown quantities, and each a possible obstacle.

The priority favoring Government work and the preference for war work shown by spinners had begun to hinder civilian business, and the delivery of commercial yarns was a matter of guesswork. The position of the trade, however, was very strong; prices had shown a continuous advance for several months, mills were well covered for at least three months into the future, and there was an actual scarcity of the most sought-for numbers to the extent that price premiums were paid for guaranteed deliveries. Markets showed a variation of several cents a pound, in instances, above published market quotations, due to the fact that buyers engaged on war work and in need of prompt deliveries were bidding against each other for popular counts, the seller umpiring the contest while buyers tested their competitors' nerve.

CERTAIN COUNTS SCARCE

The first week in March the price for 2-20s warps was 60 to 62 cents, in contrast to 56 cents for the same count on the corresponing date in February. The demand from the towel trade concentrated on 20s; an advance of two cents on two-ply and four cents on singles was registered for the last week in February. The extremely strong demand, and actual scarcity of these particular yarns, which made orders extremely hard to fill, was at the bottom of the sudden uprush in price. The inviting price situation, from the spinners' viewpoint, influenced mills to open their order books more freely to business for advanced dates running into July and August. Sellers were in the saddle, in full control of the market, and buyers were placing orders for staggering quantities without batting an eyelash. The price was what the seller asked—take it or leave it! He had too many strings to his bow to waste valuable time haggling over a mere matter of price. Buyers, too, were on velvet, the war drive was on in earnest, and the Government was an easy paymaster—nothing small about Uncle Sam in an emergency.

KNITTING YARNS ACTIVE

The underwear trade, feeling the stimulus of Government orders, was a heavy consumer and an equally clamorous customer for yarns to meet Government requirements that would brook no delay. Just what part Government work was then taking in current business was a matter of conjecture, but increasing difficulty was encountered in getting deliveries on civilian account, and commercial business was being shouldered more and more aside, and deliveries falling further in arrears. There was an intensive market at the close of the month of March—prices advancing, demand in excess of supply and centering largely on coarser counts, and evidences of general strength were plentiful, especially in knitting yarns. Higher prices were adding to the cost and risk of doing business to such an extent that greater caution was advised, and the buyer's responsibility figured in every transaction, and greater compensation was looked forward to as legitimate and just. It was regarded as a time of abnormal risk and that producers were entitled to all the traffic would bear, more especially as goods prices were setting the pace.

PRICE FIXING RUMORS

Government requirements, at the close of the first quarter of the year, had become the dominant influence in the yarn market, and in spite of speculative manipulation of the raw cotton market, yarn prices held firm, supported by increasing purchases on account of enlarged Government contracts for goods. The possibility of Government control of yarn prices began to be mentioned in a casual way, but there was nothing to indicate its near approach. Evidently the authorities were getting their wants without exercising any great pressure, and civilian buyers were not hot competitors. The last week in April the price of 2-20s skeins had reached 73 to 75 cents and there was a growing feeling that the peak had been reached, unless the trade chose to invite Government control by making use of its advantage to the utmost. The price was a nominal affair and out of hand so far as the general market went, and certain foresighted factors predicted early Government control.

EXPORT CONSERVATION

At the middle of June the trade had made up its collective mind that price fixing was very close at hand and trimmed sail to meet the change of wind from whatever quarter it might come. By making use of its function as common carrier the Government was in control of shipments, and the trade must eat out of its hand or go hungry, as available yarns were scarce. The seller who had yarns to sell could make his own price in so far as it related to civilian trade, but the Government had been for some time the path finder in routing short-cuts and accommodation prices for its contractors, and to the extent that conditions effected their own requirements. On May 17 the War Trade Board made an announcement in which it added cotton yarns to the export conservation list, including long staple American, Egyptian and Sea Island. At about that time, owing to Government difficulties in securing textiles, a new yarn section was opened in the Quartermaster's Department at Washington, and Burton Ethrington, president of the Cotton Yarn Merchants' Association, was given charge of the section. The Cotton Yarn Section was made a part of the Cotton Goods Branch of the Supply and Equipment Division of the Quartermaster General of the Army, located in Washington.

It was obvious, by the first week in June, that prices were inflated to such a degree that Government action was a strong probability. If the Government were to get cheaper prices they must be fixed by authority, to which spinners voiced no great objection. Knit goods markets had been so adjusted that they were functioning smoothly, and set rather a comfortable example to spinners of how things were done by authority. It brought to mind the resolution of May 17 to which the trade subscribed: "That we are anxious to show our patriotic spirit and our desire to help the Government in every way that lies within our power. That to co-operate with the Government to secure larger supplies of cotton yarn we shall aid in securing additional equipment and supplies and increasing production of numbers so badly needed." No speculating in yarns, 4s to 40s inclusive, was heartily agreed to, and until the end of the war the new policy that both Government and civilian yarns should be sold only on a commission basis not to exceed 5 per cent. except by Government consent, was consented to. Notwithstanding these good intentions, the Government was still in straitened circumstances for yarns in the counts in greatest demand.

PRICE FIXING ANNOUNCED

The decision to fix prices was announced about the first week in July, when spinners received letters from the War Service Committee of the National Council of American Cotton Manufacturers, calling meetings of spinners to draw up price lists to be referred to the price-fixing committee, and from that time forward the Government dominated the market until the armistice was signed. A period of inaction continued until August 15, when fixed prices were announced and confusion was introduced because of the contradictory interpretations sent flying up and down the market. It was evident the treatment given by experts was quite aside from the practical point of view upon which the trade had based its expectations. Underneath the surface the Government was getting its requirements; that being the essential thing, price fixing may be accepted as having obtained, but grumblings were not finally silenced before the epidemic of influenza began its serious ravages in October. Rumors of peace culminated in the signing of the armistice on November 11.

TACKLED RECONSTRUCTION

The trade set about reconstructing its perspective with the ambition of a weary worker tackling a fresh day's work. But the task was one of serious consequences and was handled with deliberation and caution. Numerous firms made arrangements to terminate contracts on the basis of fair compromise and friendly understanding, although the early attitude was one of fighting attempts at cancellation. A beginning was made in December to establish a basis of price on which a normal market machine could be reconstructed, and the pioneers of the movement reported a reassuring measure of success. The year closed in a spirit of general optimism and a widespread belief that near at hand, in 1919, a record business was to make its appearance.

Paulson, Linkroum & Co., Inc.

87 & 89 Leonard Street

NEW YORK, - U. S. A.

COTTON YARNS

of every description

for

Weaving and Knitting

We Specialize in Cotton Yarns

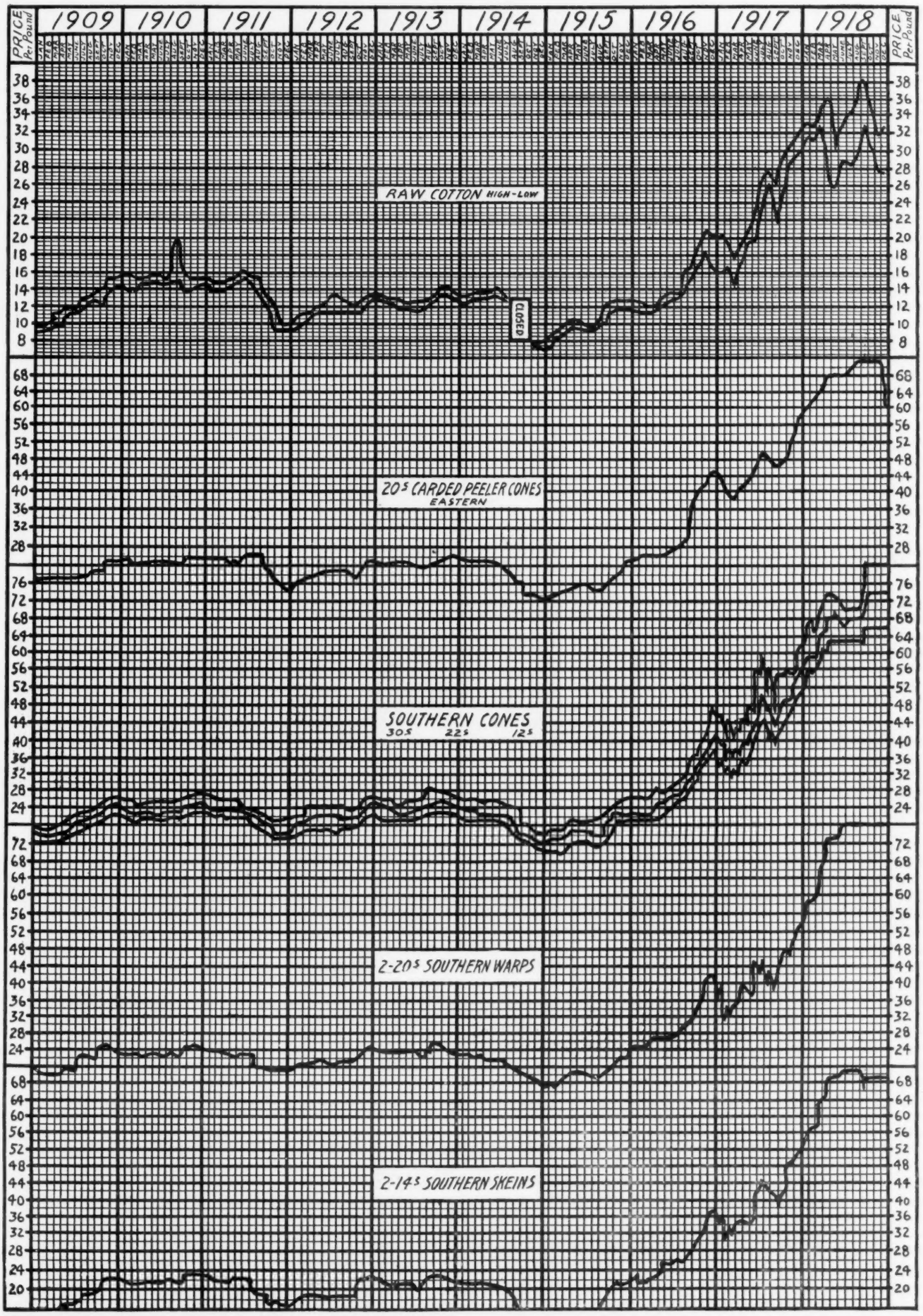
for

EXPORT

NEW YORK PHILADELPHIA CHICAGO

PRICES OF RAW COTTON AND COTTON YARNS FROM 1909 TO 1918, INCLUSIVE

THESE CHARTS HAVE BEEN COMPILED BY THE TEXTILE WORLD JOURNAL



Fine and Combed Cotton Yarns

War Exigencies Cut Production—Advance Comparatively Small

THE market for medium and coarse count carded cotton yarns during 1918 might fairly be divided into the uncontrolled and controlled periods, the change to the controlled period starting June 21, but for most counts and varieties of fine and combed yarns the market was under direct or indirect Government control throughout the year. It was started back in 1917 by the Government purchasing department forcing knitters and weavers to direct a steadily increasing amount of their machinery on to coarse Army and Navy goods.

Early in 1918, with 50 to 75 per cent. of textile machinery running upon Government goods, largely calling for coarse carded yarns, there was a comparatively small spindleage available for fine count carded and combed work. This was the dominant feature of the year for yarns of the latter character, and its effect will be felt for a long period. A fine count or combed yarn mill that has suddenly been switched on to coarse carded work cannot get back again as quickly; in fact, some may never be able to get back to a quality basis without a new complement of help. Adjustment of Governmental contracts on a 30 per cent. basis cannot cover the loss.

PRODUCTION RADICALLY CURTAILED

If statistics were compiled they would probably show that less combed and fine count yarn was produced in this country during 1918 than for any similar period in 25 years; certainly this statement would be proved true in the case of sales-yarn mills. The curtailment of demand for tire cloth yarns was tremendous and developed early in the year; in fact, it was well under way in the last part of 1917, the automobile industry having had ample warning that construction of pleasure cars would be radically restricted, and tire cloth looms had already been requisitioned in large numbers for Army duck weaving. Some tire cloth mills had turned all of their looms on to Government work by the middle of summer, and there were few which were not operating 75 per cent. on such work. And yet this almost complete elimination of new demand for tire cloth yarns only depressed prices temporarily. Most spinners changed specifications and switched on to yarns for Army duck or webbing, while others accepted cancellations and resold their product at higher relative prices.

OFTEN TREATED LIKE NON-ESSENTIALS

The War Industries Board did not go so far as to classify fine count and combed yarns among non-essentials, but, with the exception of the comparatively small volume of such yarns used in Government work, they were treated frequently as though this were the intention of Government officials. The latter were quite right in drawing their specifications so as to obtain maximum strength and production with relative cheapness, but it is a policy that has seriously disorganized many a combed and fine count mill. Even airplane and balloon cloth has tended toward coarser counts in recent specifications, and most of the threads used for Government work were of comparatively coarse count.

At no time was there a very large number of spindles employed on the 50s, 60s and 80s required for airplane, balloon and gas mask cloth, but had the war gone into 1919 the Government program would have tied up millions of spindles on such counts instead of a few hundred thousand. Fine count combed yarn production would then have become decidedly essential, and it might easily have taxed the available machinery.

RECORD PRICES, BUT SMALL ADVANTAGE

While record prices were touched in this, as in other parts of the cotton yarn market during the year, the gross advance was small as compared with that in either of the three previous war years. Barring certain specialties and very fine counts the advance did not average over 15 to 20 per cent.; this compared with advances of 25 to 50 per cent. in 1917, 50 to 75 per cent. in 1916, and about 50 per cent. in 1915. It was the old law of supply and demand that was at work last year just as it was in the previous war years, but despite a radically restricted supply the demand was almost equally diminished. The price of cotton and cost of production cut little figure, and Government price control had little influence except to stimulate spinners to try to obtain maximum prices that were far above old market values, particularly on counts finer than 40s.

A BIRD'S-EYE VIEW OF PRICES

A bird's-eye view of the course of prices on a few staple counts of combed weaving and hosiery yarns is here tabulated, showing values at the opening of the year, on June 21, the Government maximum, the average prices during the control period, and nominal values at the end of December; these were about as follows:

	Jan.	June.	Govt. Max.	Under Control.	Dec. 31.
10s Eastern Peeler Cones	65c.	75c.	86c.	80c.	70c.
40s Eastern Peeler Cones	90c.	$1.00	$1.21½	$1.10	$1.00
2-40s Eastern Peeler Skeins	92c.	1.05	1.34	1.15	1.05
2-60s Eastern Peeler Skeins	$1.18	1.25	1.59	1.40	1.20

Of course, there were occasional sales, particularly of specialties and fine counts, at prices much closer to the Government maximums than is indicated by the average values quoted "under control"; in fact, sales of 2-60s combed peeler were reported as high as $1.55, and some Eastern spinners regularly quoted $1.45 and above, but there was much more business done at $1.35 to $1.40 than at $1.40 to $1.45. Forties was one of the strongest numbers in carded yarns throughout the year, and the diversion to this, and to coarser carded yarns, of many spindles usually employed on combed yarns of finer count, tended to stiffen values of the latter, yet for a long time 40s carded and combed were selling at about the same figure.

The Government maximums for combed and fine count yarns made no pretense of reflecting market conditions, as did the maximums on medium and coarser count carded yarns; the latter were first established, and the differentials for combed and fine counts were based on these approximately; as an actual fact they were relatively a little lower. It was a makeshift solution of a difficulty and it caused much dissatisfaction among consumers, the latter claiming that no maximum should have been above the market on June 21.

Another feature of the maximum that was the cause of much complaint was the attempt to classify the quality of yarns by specifying the grade and length of cotton used. No method of enforcing this feature of the price list was provided, for the Price-Fixing Committee considered that adherence to its provisions was a patriotic matter. It would have been difficult of enforcement short of frequent inspection of the mills, for there is no known method of distinguishing the grade of cotton after it has been spun; even the stapling satisfactorily of the cotton in yarn is a difficult proposition. As a result, considerable advantage was taken of the opportunity to obtain the higher price for one grade higher cotton than was actually used. It was confined to a comparatively few spinners of medium count carded yarns, and was seldom encountered on fine counts.

THE READJUSTMENT PERIOD

The really surprising feature of the market since it started its nose-spin from the high altitude of Nov. 11 is that it has displayed an ability to recover its equilibrium quicker than the coarse end of the market. This has been due largely to the comparative absence of accumulations of fine count and combed yarns, to the apparently large latent demand and the very general belief that consumers cannot postpone fairly liberal buying much longer.

Raw material for fine count and combed yarns is in an exceptionally strong position, in that well matured, white staple of all kinds, excepting Egyptian, is scarce, while the distribution of the latter continues to be controlled by the British and Egyptian governments. As long as middling upland sells around 30c. or above it is useless to expect to buy the limited supply of peelers below a basis of 40c. for full 1¼-inch staple, and such a basis for the latter will present little difficulty to the maintenance of Sea Island and government controlled Egyptians, close to prescent prices, or a basis of 55c. for a good tire-cloth Sakelacidies, and about the same price for an extra choice Sea Island. This looks like a big drop from last year's maximum of 70 to 75c. for the latter, but it must be remembered that little yarn was sold on this basis, and, further, that labor costs are a far more important factor in fine count production, and are likely to be unchanged for a long period.

AVAILABLE SUPPLY AND LATENT DEMAND

Excepting during the first few weeks or months of the readjustment period, however, the cost of raw material and of production seem destined to play an unimportant part in determining the selling price of fine count and combed yarns. The available supply and latent demand will be found the important factors. For the first time in a year practically the whole of the spindleage capable of producing such yarns is now available, having been released from the necessity of seeking business on coarse and medium carded yarns. As long as labor remains scarce, however, maximum production of this spindleage cannot be hoped for. And it must be remembered, too, that spinners of such yarns are resuming business on a market bare of stocks of yarns, and of the goods for which they are required.

The volume of what may be termed latent demand is enormous, but the question of when and how rapidly this demand may develop remains problematical. Another very uncertain factor at the moment is the extent of foreign competition on fine count and combed yarns, and on goods produced from them. There is no adequate tariff to prevent their incursions, and if English spinners and manufacturers need United States business there is nothing to prevent their taking it. Even were they to control counts finer than 70s there might be enough business left to tax the capacity of domestic fine count and combed yarn mills.

The automobile trade alone may require more than 100,000,000 pounds of 20s and 23s combed peelers, Egyptians and Sea Islands during 1919, and the demand from knitters, mercerizers, thread converters and other large users should be proportionately large. Stocks from mills to consumers are exhausted, while consumers have the money to satisfy their taste for quality goods and may be expected to do so.

Japanese Cotton Goods in Greece

Difficulties Surrounding Trade in American Merchandise

(Special Correspondence)

ATHENS, Nov. 9.

AS I am always interested in the introduction of American cotton goods into foreign markets, I am sorry to learn that for the first time a few days ago 1,500 pieces of Japanese gray sheetings arrived in Piraeus via Port Said. The quality of these is similar to the 3.00 yard American sheeting. It is of 36 inch width, 40 yards to the piece, appproximate weight 13 pounds each, and in bales of 20 pieces. Most of the merchants here like the quality, and they have informed me that on account of the low price they expect to do a large business in Japanese gray piece goods. I have learned that the two customers of the 1,500 pieces have paid 53s. per piece, c. i. f. Port Said, or about $12.80, contract closed July, 1918, but after that many merchants placed new orders; as far as I know, these amount to about 30,000 pieces, or 1,200,000 yards, at the price of 47s. to 50s. per piece, or about $11.50, and they expect to arrive in Port Said during November to January, 1919. The expenses from Port Said to Piraeus amount to about 18 to 20 per cent., therefore the price of $11.80 will be c. i. f. Piraeus $13.80.

What will American sheetings cost? Take to-day's price of 26c. per yard for 3.00 yard sheetings, a piece of 40 yards will cost f. o. b. New York $10.40. The expenses, such as freight and insurances, are from 50 to 60 per cent; those of the steamer Andreas, which sailed from New York about the end of August, 1918 (and not arrived yet), are about 53 per cent. So the piece of 40 yards from New York will cost c. i. f. Piraeus $16.12, an increase over the Japanese sheeting of $2.32 per piece, which is considered large by the dealers in Greece, although the quality of the Japanese goods is inferior to the American 3.00 yard sheeting, which has the same weight, viz., 13 pounds to a piece of 40 yards.

(*Continued on page* 197)

Economies of High Density Compression

(*Continued from page* 133)

device is effective, tried and proven, though somewhat costly.

The Turner attachment is merely a device for holding the iron bands tightly against the bale while it is under compression. The bands, when clasped, thus prevent the undue expansion now experienced of the cotton when the pressure from the jaws is removed. It is high density compresses at economically located ginning points where the cotton may be ginned, sampled, graded, compressed, bagged and banded at the initial point so that a minimum of 100 bales may be loaded into a standard 36 foot box car and move on to its destination without halt. There are now some 500 such plants in more or less complete operation, largely working on round bales.

In order to fully inaugurate universal high density gin compression it will be

AMERICA'S DISGRACE

cheap of installation, effective, and its utility has been completely demonstrated.

The 300 recompresses and the 58 high density machines that are now in use are all heavy costly affairs. A recompressor without the high density attachment costs, in normal times, from $25,000 to $30,000. The high density attachment from $12,000 to $15,000. Under the abnormal conditions now prevailing these costs might easily be doubled. They operate at a rapid speed, being capable of turning out from 80 to 100 bales an hour.

The 58 high density machines now in operation working at the rate of 80 bales an hour, 12 hours a day during the 120 days of the cotton season should be capable of compressing something more than a half of a season's crop if they were geographically located so that the cotton might be economically brought to them—but they are not.

GIN COMPRESSION

The second method and that by which the greatest economy might be brought about is the universal adoption of what is known as "Gin Compression," or the establishment of a sufficient number of necessary to re-equip the ginning plants at some 4,000 or 5,000 points whose location at advantageous places would have to be carefully looked after. The high density compressor applicable to such plants is a much lighter, smaller and less expensive machine than these previously described. Being greater in number and more economically distributed, rapidity is not so essential. Their capacity is from 15 to 25 bales an hour. In cost they will vary from $2,000 to $5,000 each. Enumerated they are: The "American" cotton gin-compress of Memphis; the "Modern" gin-compress of Little Rock; the "Munger" press of the Continental Gin Company of Dallas, and the Turner high density device of Memphis.

In addition to these there are the following round bale presses in the market, many of which are installed and working, all are reasonably cheap of installation and are suitable for high density gin compression work: Southern Round Bale Press Company of New York, the Round Bale Press Company, the Anderson and Clayton Press, the Reagan Round Bale Press, the Taft Round Bale Press, all of the last three being of Houston, Texas, and the Dunlap Round Bale Press of Dallas.

Various estimates have been made of the saving in box car and steamship space that might be brought about by the universal adoption of the high density gin compression principle. Based on testimony on file with the Interstate Commerce Commission and with the Texas and other state railroad commissions in suits that have been brought affecting cotton tariffs; on the investigations of the War Industries Board, the National Association of Cotton Manufacturers, of various other cotton manufacturing and growing associatiions, and of private investigations including those of the writer, the following estimate may, with safety, be made:

SPACE SAVING BY HIGH DENSITY GIN COMPRESSION (12,000,000-bale crop)

Saving of 83 per cent. of box cars now in use;	
Saving of 90 per cent. of the car days now used;	
Number of cars saved, single trip	469,915
Number of days saved	2,006,153
Mileage saved on one gross ton	2,577,400,000
Number of ships of 15,000 bales capacity saved in exporting 5,000,000 bales, single voyage	95

This latter item equals a constant use of 18 ships of 4,000 tons each.

In the admirable report of the Storage Committee of the War Industries Board last spring on "Improved Methods of Baling Cotton" the following estimate of space saving in box cars is made that would result from the universal adoption of gin compression:

100-BALE LOTS—PRESENT PRACTICE

Gin to compress, 3 36-foot cars	2 days
At compress, 3 36-foot cars	2 days
Compress to port, 2 36-foot cars	2 days
Total car days	16

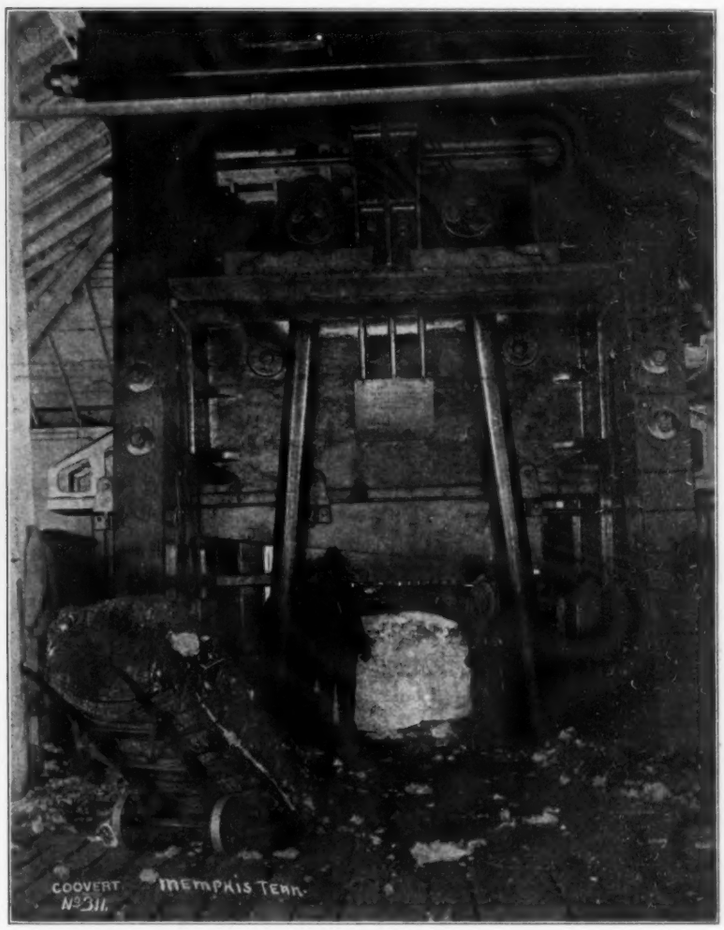
100-BALE LOTS—GIN COMPRESSION

Gin to port, 1 36-foot car	3 days
Saving in car days	13
Saving in per cent	81

The report goes on further to say: "Equitable freight rates on cotton, with relation to other commodities, will result in preventing useless waste of energy and materials to the value of $100,000,000," and "removal of an unjust burden on cotton in the matter of freight rates will have the result of raising the efficiency of America more nearly to an equity with Egypt, India and China in the cotton industry."

The full consummation of the high density gin compression idea, it is popularly believed, will result in the saving of the $100,000,000 mentioned in the report. It is a figure that has never yet been successfully controverted, many experts naming double this sum. This saving would be brought about by the elimination of the following wastes: waste on account of shortened fiber occasioned by improper ginning; waste on

(*Continued on page* 381)



SIDE VIEW OF A "MORSE" COMPRESS WITHOUT HIGH DENSITY ATTACHMENT. A "PLANTATION" BALE IS IN THE JAWS OF THE PRESS READY TO BE SQUEEZED INTO A "RECOMPRESSED" BALE. THE BALE ON THE TRUCK IS ALSO A "RECOMPRESSED" BALE. THIS COMPRESS COULD EASILY BE EQUIPPED WITH A WEBB HIGH DENSITY ATTACHMENT BY THE ADDITION OF SIDE DOORS; OR WITH A TURNER HIGH DENSITY DEVICE BY SUPPLYING THE ATTACHMENTS TO THE BAND SLOTS IN THE PLATENS.

WILLIAM M. BUTLER
President

EDWARD H. COOK
Treasurer

THOMAS F. GLENNON
Agent

QUISSETT MILL

NEW BEDFORD, MASS.

COTTON YARNS

Our Carded and Combed Yarns are spun in all numbers and descriptions. PLY YARNS our specialty

EGYPTIANS — SEA ISLAND — PEELERS — SAKELARIDES

QUISSETT *MEANS* **QUALITY**

WILLIAM M. BUTLER
President

EDWARD H. COOK
Treasurer

THOMAS F. GLENNON
Agent

JOSEPH R. GLENNON
Superintendent

NEMASKET MILLS

TAUNTON, MASS.

Carded and Combed

COTTON YARNS

All numbers and descriptions

EGYPTIANS — SEA ISLAND — PEELERS — SAKELARIDES

SELLING HOUSE

BUTLER PRENTICE COMPANY

NEW YORK

Co-operative War Work of Cotton Associations

The American Cotton Manufacturers Association—The National Council of American Cotton Manufacturers

By *W. D. Adams, Secretary*

THE loyal, untiring, unstinted and wholly patriotic service rendered by the great cotton industry in the "winning of the war" will be one of the glorious achievements in the annals of American trade. And this statement is made, not unmindful of the equally great achievements of other industries, alike engaged in the great enterprise. But the problems confronting the textile industry, more so than almost any other, were so exceptional, so numerous and so difficult of approach and solution and the industry so diverse in character of output and distribution of units as to make united and really effective co-operative service apparently well nigh impossible of accomplishment. But in spite of all troubles the closest spirit of patriotic service was engendered and the great task was carried through from first to last—to the great glory of the industry.

As the war program grew, in the early days of America's participation in the struggle it become more and more manifest that the textile requirements would be of really staggering magnitude and such as could not be supplied without the loyal and unstinted participation of each and every mill in the country. It was furthermore evident, in order that the needs of the war machine be supplied and at the same time civilian requirements be met, that greater production would have to be had, and likewise that many mills not adapted to the production of special materials be converted without delay so as to produce these essential goods. It soon also became apparent that the industry would have to be stabilized, and attention be directed towards seeing that the Government obtained its goods in maximum quantities at fairly reasonable prices and likewise that the civilian trade be safeguarded.

The American Cotton Manufacturers Association, in conjunction with the National Association of Cotton Manufacturers, had formed years ago a National Council of American Cotton Manufacturers for the purpose of handling all problems of national concern affecting the industry, and the National Council quickly launched forth into the great enterprise of marshaling the industry into line so that the desired co-operation might be obtained.

The American Association, through its offices in Charlotte and its branches throughout the South, also threw itself into the work, aiding member mills in obtaining supplies, changing over to war work, urging that civilian requirements be postponed for Government needs, aiding in the sales of all Liberty Bond issues, war savings stamps, thrift stamps, etc., etc. Nothing was omitted that might be done to keep production at high levels, to bring about a better spirit of co-operation on all sides and to aid the various war agencies in the successful prosecution of their work.

PERSONNEL OF NATIONAL COUNCIL

But the National Council was the agency through which the major service was directed. It represented and acted for the entire industry; it had a strong working force on the ground in Washington and it commanded a following and an influence that was country-wide.

The National Council on May 3, 1917, was composed of Stuart W. Cramer of Charlotte, N. C., chairman; Edwin Farnham Greene of Boston, vice-chairman; Albert Farwell Bemis of Boston, treasurer; W. D. Adams of Charlotte, secretary, and Fuller E. Callaway, Georgia; D. Y. Cooper, North Carolina; Albert Greene Duncan, New York; P.Y. De Normandie, Maine; Arthur J. Draper, North Carolina; Frank J. Hale, Massachusetts; James D. Hammett, South Carolina; Allen F. Johnson, Georgia; Gerrish H. Milliken, New York; W. Frank Shove, Massachusetts, and Capt. Ellison A. Smyth, South Carolina.

THE COUNCIL'S WAR SERVICE COMMITTEE

The National Council selected a War Service Committee for the purpose of handling the problems of co-operation with the Government, of which Gerrish H. Milliken of Deering, Milliken & Co., New York, was chosen chairman, and Arthur J. Draper of Charlotte, N. C., was chosen vice-chairman.

SCORE OF WAR WORK

The National Council, through its offices in Washington, worked in closest co-operation with the various bureaus, sections and divisions of the War Industries Board, Quartermaster Department, Surgeon-General's office and the American Red Cross, to say nothing of other departments in Washington, for the purpose not only of enabling the Government to obtain the supplies needed but at the same time to aid the mills constituting the industry in securing priorities, transportation and other service that would enable them to go ahead with their work. It was only by this united and continued effort that effective service was rendered. Officials of the Cotton Section of the War Industries Board, the cotton section of the Clothing and Equipage Division of the Quartermaster and the other bureaus constantly availed themselves of the facilities thus made possible and the National Council in turn availed itself of the co-operation of these Government boards in obtaining such assistance as would enable the industry to proceed without delay in the execution of desired work.

One of the achievement wonders of this period of service was the way in which the more than thirty-four million spindles, or rather that large proportion that could execute Government contracts, threw themselves quickly and whole-heartedly in the great work. This production was so great that when the armistice was signed early in November the War Department had enough cotton goods on hand or in process under contract to supply the army of approximately four million men on a peace footing (the basis then applicable) for a period of two years. This will indicate the extent to which the industry had placed itself in a position to co-operate with the Government.

THE APPROACH TO PRICE FIXING

The effective service rendered by the industry from the standpoint of the Government as well as from the viewpoint of the industry was evidenced by the manner in which the industry was stabilized through the price fixing program, jointly enunciated and handled by the Price Fixing Committee of the War Industries Board, of which Robert S. Brookings was chairman, and the War Service Committee of the National Council of which Mr. Milliken was the head. As the Government made larger and larger purchases, the civilian market began to show signs of inflation that quickly became marked, so much so that those who kept closely in touch with the trend of events became vitally concerned as to the outcome. Their feelings were shared by the Price Fixing Committee and during April, May and June, a number of conferences were held with a view to mapping out some effective plan of procedure that would have the effect of stabilizing the market and thereby safeguard the interests of the Government, the civilian trade and all other parties concerned. It was recognized that some form of control was highly desirable, indeed necessary. These conferences eventuated in an agreement reached on June 8 when the War Industries Board put the industry on notice that all future sales would have to be made subject to regulations then and thereafter announced. This agreement was given the widest publicity and briefly stated, follows:

ORIGINAL PRICE AGREEMENT

"On all bona fide sales made on or before June 8, 1918, for delivery previous to January 1, 1919, prices to remain as shown in sales.

"On all sales made after June 8, 1918, for delivery subsequent to September 30, 1918, the prices are to be subject to revision to accord with the prices agreed upon by the Price Fixing Committee of the War Industries Board in conference with the War Service Committee of the National Council of American Cotton Manufacturers.

"On all sales made for delivery after January 1, 1919, the prices made by the Price Fixing Committee in conference with the War Service Committee of the National Council of American Cotton Manufacturers are to be the prices, regardless of the fact that the sales may have been made previous to June 8, 1918.

"It is understood that all prices for so-called spring 1919 business will be subject to such revision."

SUPPLEMENTARY PRICE ANNOUNCEMENT

On June 22 a supplemental agreement and announcement was made which follows:

"The Price Fixing Committee recognizes the necessity for prompt stabilization, and expects that it will soon fix prices, even in the absence of such cost data as would be desirable; and, accordingly, it announces that its action in this instance is not in accordance with the usual procedure and may not be expected to be the basis for future operations with this industry.

"As a part of the price program which is planned to be operative within a few days, the following stipulation was agreed to, supplementary to the provisions previously agreed to:

"All sales made after June 21 and before Oct. 1 will be on the basis of the prices to be approved by the Price Fixing Committee to apply to sales made before Oct. 1—this regardless of the period during which delivery is to be made.

"Prices will later be fixed to apply to sales made during the period Oct. 1 to Dec. 31, 1918, or for such other period as may appear desirable at the time.

"The War Service Committee submitted prices on a few staple cloths. The prices are materially lower than the present market prices. The committee was instructed to submit on July 1 a schedule of prices on the complete list of staples, as well as prices on cotton yarns, all on a parity with the prices suggested today."

THE BASIS ESTABLISHED

On July 8, the basis prices were announced on 36-in., 48 x 48 3-yd. sheetings at 60c.; 36-in., 56 x 60 4-yd. sheetings at 70c.; 38½-in., 64 x 60 5.35-yd. print cloths at 83c. per yd.; 38½-in., 80 x 90 4-yd. print cloths at 84c., and standard wide and sail duck, 37½ per cent. and 5 per cent. from list, and standard army duck 33 per cent. from list, which were to hold for the first selling period on primary sales from June 8 for delivery after Oct. 1 and all primary sales made since June 21 regardless of delivery date. These prices were announced by Presidential executive order, the last paragraph of which read as follows: "The President in approving these prices, has expressed his appreciation of the spirit with which the cotton manufacturers have met the Government's efforts to stabilize an industry which so directly reaches into the life of every citizen. The President calls upon and expects all manufacturers of ready-to-wear goods as well as all dealers in cotton fabrics to so regulate their profits as to insure to the consumer the full benefit of this large reduction in price." These basis prices represented a reduction from quoted market prices of about 20 to 30 per cent., the later figure more nearly approximating the general condition.

WORKED OUT DIFFERENTIALS

Having established a basis, the next great task was to work out the differentials for the thousands of constructions, in order that all might be on a parity and so that the return to each plant would approximate the same. This problem presented many difficulties which were happily solved by obtaining the assistance of two of the foremost practical mill engineers in the country, namely Messrs. C. R. Makepeace of Rhode Island, and J. E. Sirrine of South Carolina, who were called in by the Government to check up on the prices and thus establish true differentials. Messrs. Makepeace and Sirrine were in constant conference with Mr. Milliken and the members of the executive committee of the War Service Committee (Messrs. Milliken, Draper, Cramer, Greene, Pierce, Osborn, Anderson, and with Messrs. J. E. Rousmaniere and W. E. Winchester, secretary and assistant secretary respectively) and the result was that, from time to time, differentials were announced, as quickly as they could be passed upon and approved.

SCIENTIFIC PRICE BASIS NEVER ADOPTED

The first revision period extended from June 8 to Oct. 1. In that period, the price of raw cotton advanced to such a figure that the Price Fixing Committee of the War Industries Board, when it came to consider a revision to cover the new period, extending from Oct. 1 to Jan. 1, decided to continue the then existing prices until Nov. 16, with the idea that, should there be any substantial variations in the primary factors entering into costs, a revision might be made at that time.

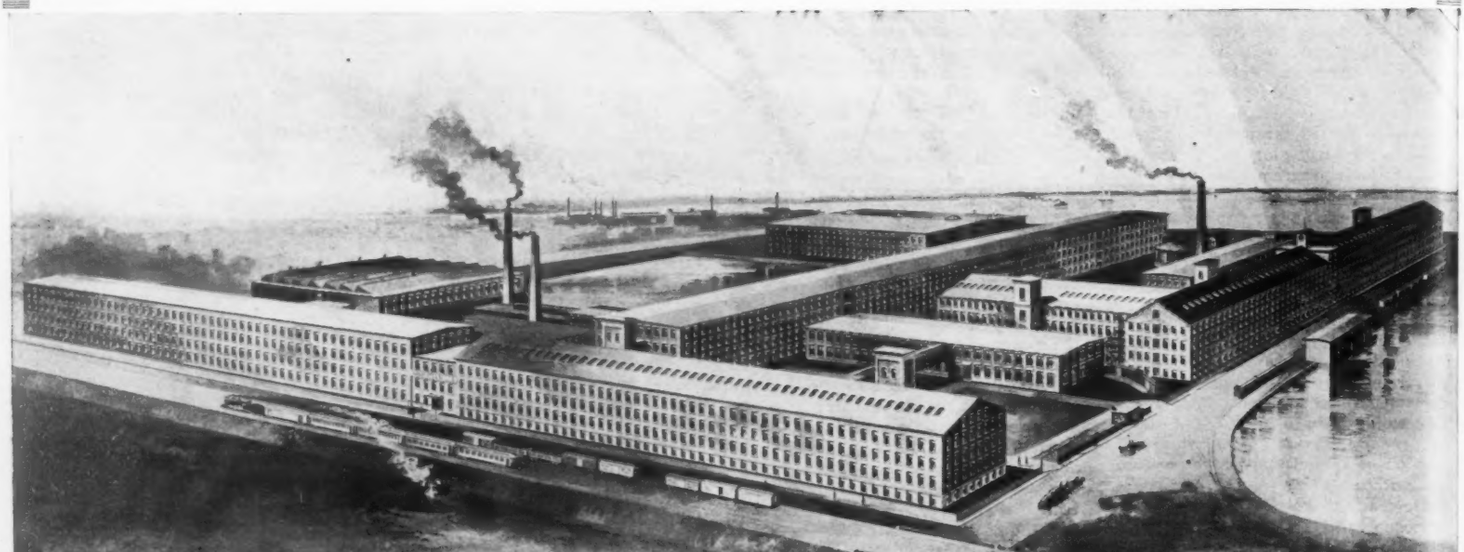
It was also the plan to approach the price fixing arrangement from an entirely new angle, namely, cost plus a fair and liberal profit on investment, in contradistinction to the previous arrangement of an arbitrary price basis, estimated and not based on actual figures. During this six weeks' period, the experts of the Federal Trade Commission were requested to visit a large number of representative cotton mills, go over the books in each case and seek to arrive at what might be considered a fair average price for standard cotton fabrics, including yarns. This was done and the facts were obtained from a large number of representative plants.

WAMSUTTA MILLS

NEW BEDFORD, MASS.

Established 1846

OLIVER PRESCOTT, Pres. ANDREW RAEBURN, Treas.



230,000 Spindles **WAMSUTTA MILLS** **4310 Looms**

PRODUCING THE DURABLE AND WELL KNOWN

Wamsutta Sheetings 4-4 Bleached

AND FULL LINES OF FINE SHEETINGS IN THE GREY FROM 4-4 TO 12-4

ALSO

Shirtings, Lawns, Cambrics and Muslins . . .
. . . and Fine Goods for the Converting Trade

CARDED or COMBED — PLAIN or FANCY — LIGHT or HEAVY and HIGH QUALITY YARN

BLEACHED GOODS
AND SPECIAL FABRICS
Sold by
Watts, Stebbins & Co.
44 Leonard Street
NEW YORK

YARNS
SOLD DIRECT
and by
Richard A. Blythe, Inc.
308 Chestnut Street
PHILADELPHIA

GREY GOODS
PLAIN AND FANCY
Sold Direct
Wamsutta Mills
NEW BEDFORD
MASS.

With everything thus in readiness for further procedure on Nov. 16 the armistice was signed and thus the war brought to a practical end insofar as actual fighting was concerned, and immediately the various Government agencies began planning termination of extensive cotton goods contracts. It was decided, therefore, to continue prices, with certain adjustments of differentials, through the period from Nov. 16 to Jan. 1, when it was stated that no further control of prices would be maintained.

CONTRACT TERMINATIONS AND ADJUSTMENTS

The armistice was followed by the termination of numerous cotton goods contracts, variously estimated at around a quarter of a billion dollars, and this brought the opportunity for continued service on the part of the National Council with a view to safeguarding the industry. Conferences were held with officials of the Quartermaster and other departments, and on Dec. 17 a plan for termination of cotton goods contracts was announced by authority of the Director of Purchase and Storage, Purchase, Storage and Traffic Division, General Staff, that bids fair to provide a fairly equable ground on which adjustments may be worked out without entailing undue hardship on the mills. Of course, there are many difficulties in this as well as in other lines of work, but a reasonable basis has been established on which to build.

Space does not admit of entering into great detail, but only the major elements may be touched upon.

PATRIOTIC SACRIFICES BROUGHT SUCCESS

The success attending the work of the National Council has been due to the willingness of the foremost and most successful manufacturers allied with the industry to give their time and great abilities to the patriotic work in hand. There was never a time when these gentlemen did not leave their offices and the directing of great industrial establishments, travel to Washington, spend days there and then hurry back again; not once or twice, but just as often as the exigencies of the situation required.

CHANGES AMONG OFFICIALS

A change in personnel of consequence during the year was the retirement of Stuart W. Cramer as chairman of the Council and the election of Arthur J. Draper, President of the American Cotton Manufacturers' Association, as his successor. James R. MacColl of Rhode Island succeeded Mr. DeNormandie as a member of the Council, and W. E. Beattie of South Carolina likewise succeeded Mr. Cramer on the Council.

WORKING ON RECONSTRUCTION PROBLEMS

The Council is now addressing itself to the problems of reconstruction and the manifold activities that will attend the resumption of normal conditions at home and abroad in the light of the new conditions.

An Association That Is Always at Work

(*Continued from page* 125

of conditions in the textile industry, no one of the activities of the National Association has been more important during the past year than that of the Committee on Cotton Buying. Through its efforts and as a result of a conference held in New York in May last, there was appointed a special committee of nine, composed of three Northern spinners, three Southern shippers and three bankers, to report on better and more effective methods of financing cotton. At a second conference, this committee unanimously adopted a resolution that bank and trade acceptances be employed, so far as practicable, by shippers and spinners in financing cotton. There has been prompt and gratifying acceptance by the trade of this recommendation, and as a further result, a discount corporation is now being organized, the primary object of which will be the buying, selling, and otherwise trading in acceptance paper arising out of transactions in cotton, cotton goods and all other textiles. The committee has also in an advanced state of preparation comprehensive plans for the erection of bonded warehouses at both Northern and Southern ports, which, once constructed and in operation, will complete a much-needed revolution in the financing and storage of cotton. Those who have followed with appreciative knowledge the work of the Committee on Cotton Buying, under the able chairmanship of Mr. Randall N. Durfee, believe that in the not distant future New York and Boston can be made as important cotton marts as has been Liverpool for many years.

THE INTERNATIONAL COTTON CONFERENCE

Last, but by no means least, of the activities of the National Association during 1918, has been the completion of preliminary plans for an international cotton conference, to be held either in Memphis or New Orleans in October of the present year. The desirability of holding an international cotton conference in this country has often been pointed out, and early in 1917 the National Association appointed a committee, of which Mr. James R. MacColl was chairman, for the purpose of developing plans for such a conference. Mr. MacColl's appointment was logical, for he was president of the Association in 1906, when the British cotton investigating commission visited this country, and in 1907, when the International Conference was held in Atlanta, with an attendance of more than eight hundred delegates, including over one hundred foreign spinners and manufacturers. In its report to the National Association at its fall convention in 1917, Mr. MacColl's committee strongly recommended the convening of another conference after the war, and this report was adopted unanimously by the Association. The Board of Government of the Association, at its November meeting, directed the President and Secretary to form and call the first meeting of a general committee, which will take in hand arrangements for the proposed conference. This committee, drawn from every important branch of the domestic industry, will hold its first meeting in Washington on January 17. From it will be selected an executive committee, which will have direct charge of the conference plans, and which will in turn appoint sub-committees to look after details of the conference. One of its first duties will be the sending of a special committee to Europe to extend formal invitations to associations of spinners and affiliated interests. Already there is evidence of unusual interest in the conference displayed by the cotton trade of New Orleans and of Memphis, and it is quite probable that there will be spirited bidding between those two cities for the honor of entertaining the conference.

It is perhaps not unbecoming in the writer to point out, in conclusion, that the National Association has become a constantly active business organization, and through its directors and its standing committees, provides abundant labor for a secretary, an assistant, a field secretary and necessary stenographers at its Boston and New York offices. Its activities are conducted with due regard for economy in expenditure, but these will call for an outlay during 1919 of not less than $50,000.

Eight Hour Day Defined

(*Continued from page* 123)

provisions of law prohibiting more than eight hours labor in any one day of persons engaged upon work covered by contracts with the United States; provided further, that the wages of persons employed upon such contracts shall be computed on a basic day rate of eight hours work, with overtime rate to be paid for at not less than time and one-half for all hours work in excess of eight hours."

The practical effect of the insertion of this provision for increased overtime rates was to change the character of the Federal Eight-Hour Act from an hours-of-service to a wage statute, and by legislation to introduce the basic 8-hour day with penal rates for overtime.

Thus in the Adamson law and in the modified Federal 8-hour statute, the terminology of the legislation shows that the basic 8-hour day is a wage question.

Even in advance of legislation on this subject, some employers had already voluntarily applied the basic-day principle with increased rates for overtime. Usually this plan was predicated on a workday of nine or more hours, and overtime rates were from 25 to 50 per cent. higher than regular rates.

Increased rates for overtime are obviously designed to discourage employers from resorting to it. To this extent, the provision is related to the problem of health and social relaxation. In practice, however, these penal rates have proved an incentive to overtime work by the employe and thus tend to defeat any desire to promote his health or increase his leisure. Therefore, these rates, though ostensibly a penalty on the employer, are in reality a premium to the employe. So far as such an incentive induces the worker to work a longer day than is justified on the grounds of health, it is clearly warranted only by unusual emergency. In such cases overtime is physically undesirable, and overtime rates mean extra compensation for diminished productivity. Furthermore, experience has shown that the overtime rate tends to increase the amount of absenteeism during regular hours, for with premium overtime rates workers can earn their usual wages in shorter time and are thus more inclined to "lay off."

As an illustration of these effects, a study of 20,000 shipyard workers in San Francisco during April, 1918, may be cited.[1] For a group of over 3,600 workmen employed at a wage of $5.80 per day, working under the basic 8-hour day during the month of April, 1918, overtime constituted 11.8 per cent. of the total hours worked. Nevertheless, these workers lost so much regular time that, even when their overtime was taken into account, they were still 19.4 per cent. behind the full time which continuous work for the regular 8-hour period each day would have yielded. Yet, by working at double rates an amount of overtime equal to about one-half of the total regular time lost, these workmen earned 99 per cent. of the wages they would have received for full time regular work. Similarly, in the case of over 5,700 other shipyard workers engaged at $3.57 a day, 25 per cent. of total regular time was lost, even when credit was given for all overtime. In this instance, however, overtime earnings of these workers, though at double rates, made up only 49 per cent. of the wages lost during regular hours. It is clear that these men were not using the provision of the basic 8-hour day to increase either their own total earnings or the total output of the establishment.

[1] The figures here presented are taken from an unpublished report by Miner Chipman of San Francisco.

THE WORK-WEEK

The 8-hour day, whether straight or basic in character, implies as a corollary a certain length of work-week. The straight 8-hour day naturally leads to the 48-hour week, with 8 hours of work for 6 days, and with overtime beyond 48 hours prohibited save in emergency. The practice of working only half a day on Saturday at times leads to a compensating lengthening of hours of work during the first five days of the week so as to offset the loss on Saturday. But where the Saturday half holiday is coupled with the straight 8-hour day for the first five days of the week, the work-week is automatically reduced to 44 hours. Where the Saturday half holiday is observed there is sometimes a sentiment in favor of entire cessation of work on that day, thereby creating a nominal 40-hour week.

The basic 8-hour day implies a nominal 48-hour or 44-hour week according to whether or not a Saturday half holiday is observed. But overtime is permitted and paid for at overtime rates if the work on any day extends beyond 8 hours. In some cases overtime rates are paid for Saturday afternoon work.

DISTINCTION BETWEEN STRAIGHT AND BASIC EIGHT-HOUR DAY

Clarity in discussion of the 8-hour day issue depends ultimately on recognition of the fundamental distinction between the straight and the basic 8-hour day. Recognition of this difference is equally essential to intelligent discussion of the work-week. Most aspects of the 8-hour shift system also admit of similar distinction.

In practice, the essential difference between the straight 8-hour day and the basic 8-hour day arises in connection with overtime. The straight 8-hour day under no circumstances encourages overtime and, as enforced by legislation, prohibits it. The basic 8-hour day allows overtime, under penal rates which are intended to discourage it. Their practical effect, however, is to encourage what they are designed to prevent.

In principle the straight 8-hour day is a matter of social policy based on regard for the health, welfare, and leisure of the workers. The basic 8-hour day is a measure of service and reward. The former regulates hours of service, the latter is a form of wage arrangement.

This essential difference is in a measure reflected in the methods by which limitation on work-hours has been brought about. Legislation has been the most general method for the introduction of the straight 8-hour day. Such legislation has usually been promoted by those who give weight to social considerations, while action by employers or by labor unions has generally favored the basic day. In any event, labor organizations have repeatedly opposed legislative limitation of hours of work on the ground that such legislation would weaken their economic strength.

D. H. Mauney, *President*
J. S. P. Carpenter, *Treasurer*

D. A. Rudisill, *Secretary*

Phil S. Steel, *Vice-President*
Jno. J. George, *Second Vice-President*

Mauney-Steel Company

COTTON YARNS

An Incorporation of 20 Southern Spinners

DIRECT FROM PRODUCER TO CONSUMER

---

237 Chestnut Street **Philadelphia, Pa.**

Eastern Office, 336 Grosverner Bldg., Providence, R. I.

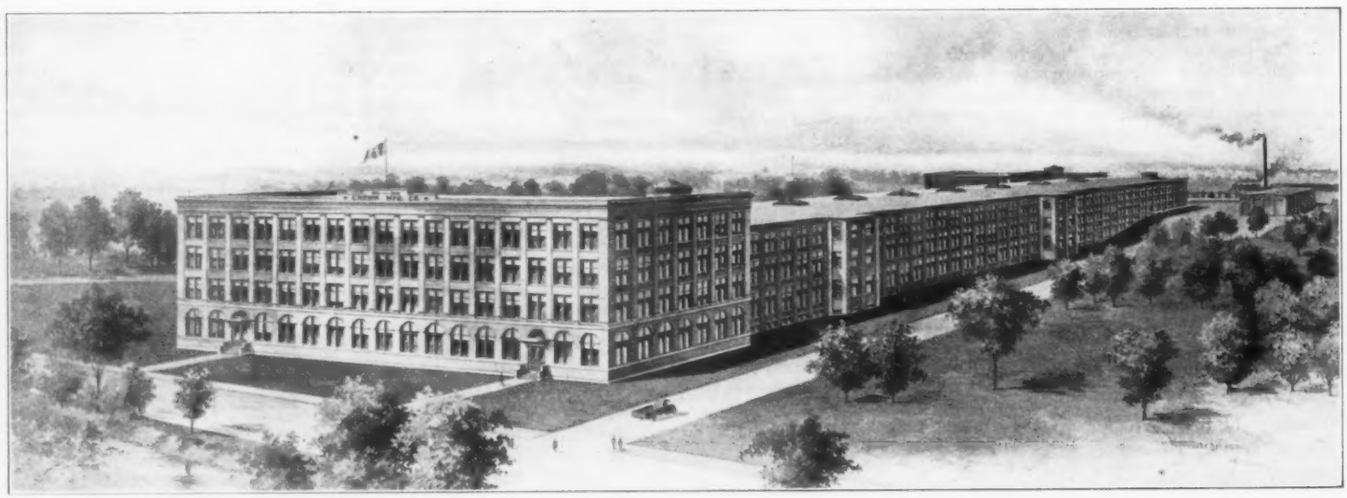
Southern Office: Cherryville, N. C.

MILLS DESIRING DIRECT REPRESENTATION AND HAVE THEIR PRODUCT SOLD UNDER THEIR OWN MILL NAME WILL PLEASE COMMUNICATE

LYMAN B. GOFF, President BENJAMIN C. CHACE, General Manager EDWARD E. LEONARD, Treasurer

Crown Manufacturing Company

PAWTUCKET, R. I.



SPECIAL QUALITIES IN COMBED COTTON YARNS

60,000 Spinning Spindles

Single and Ply For All Purposes
FROM
American, Egyptian and Sakelaridis Cottons

10,000 Twister Spindles

New Factor in World Commerce

(*Continued from page* 129)

the treaty of 1884. When stating and defining this new field for the exercise of corporate powers, I have deliberately and advisedly circumscribed their extent; and I will ask you to note I have not suggested those rights should extend beyond privileges "substantially similar" to those conferred upon cable-owning concerns. An examination of the extent of those powers will disclose how cable companies are authorized to invoke aid and summary protection by the commander of any war-vessel of the signatory powers; but, of course, such extraordinary privileges find no place in what, in its legal aspect, will be an International General Incorporation Law. If this convenient and seasoned power of organizing corporations under a general statute is translated into terms of international law, that is the result sought for as the ultimate objective, viz.: a feasible and convenient institution of sufficient scope to supplement, round out and complete the existing almost universal American system of franchise-acquirement. That the procurement thereof will call for negotiations and treaties is to be expected; unless (as we have seen was done in the matter of copyright privileges under the Act of 1905), we should extend generally to citizens of foreign nations the same privileges our citizens there enjoy.

EFFICIENCY IN OPERATION

In the *Saturday Evening Post* of Dec. 7, Alonzo Englebert Taylor, attaché of the American Embassy in Germany in 1916, exhaustively reviews the subject of "The Control of Raw Materials," with special attention to German methods of obtaining and maintaining supremacy in certain lines of trade; and the author draws the comforting conclusion that the bug-bear of "German efficiency" is not half-way terrifying when it is examined closely and is thoroughly understood. By way of summing up he says: "In the final analysis, control of commerce, trade and manufacture will rest upon efficiency in the operation of the several factors"—factors in which Americans have achieved high records in competition with German traders in those relatively few industries wherein we have earnestly courted control in foreign trade.

"Efficiency in operation," that is America's long suit! If our success in foreign fields of trade depends upon that quality, we are *sure* to win.

But while the world is so palpably in a state of flux—why not also maintain our capital in a liquid state? Why not, by an authorized type of International Commercial Corporation provide a safe and convenient channel directed to those places where that capital is most required?

In these busy times the investor should not be worried or deterred by obstacles of obscure foreign laws. The complications of business are sufficient of themselves; why add a needless fence, hurdle-like, over which investors must leap to obtain their goal,—and this, too, in a course which presumably will lead them to only a fair return, while the venture will certainly enrich the country which secures American capital for its development?

And now, as we draw near our conclusion, we would add that many minor objections yield readily to intelligent and sympathetic treatment.

Thus, one or more representative upon the Board of Directors will assure to local interests in each country full information as to what is transpiring; and will, with equal certainty, maintain their right to urge arguments and press policies upon the consideration of the management. There is nothing inherently difficult—far less, dangerous or prohibitory—upon the score of representation. That question will readily find its answer; and a working basis will be evolved before an extended period of actual experience has elapsed.

INTERNATIONAL DIFFICULTIES LESSENED

Instances ar bound to occur where freight, labor conditions and tariffs singly or in combination do not admit of export or import trade in articles which afford reasonable prospects of a satisfactory return in the local market; but frequently in these situations, were foreign factories established by American capital and run in accordance with American standards of efficiency in equipment and management, they would create or revive a profitable industry. When such business opportunities occur, the American investor no longer will sit passively by; but how much simpler his course if, instead of wrestling with the intricacies and perhaps adverse provisions of foreign laws, he can simply conform to certain treaty requirements, and say—"On these rights I stand! Powers and privileges have become vested in my corporation in accordance with rights contained in solemn treaties, duly ratified and confirmed. My company possesses the right to demand impartial investigation and redress when any grievance is alleged—with right to conservation of assets if war-time conditions arise. With these ample powers at command, I will journey forth like my ancestors, and will conquer new interests in new lands!"

May this young but virile thought grow and justify its existence (even at the Peace Table at Versailles), perhaps leading men of future years to say—

"The little seed********
"Has now become a bulk of
spanless girth,
"Which shoots on every side a
thousand mighty arms."

Foreign Trade Obligation

(*Continued from page* 128)

in the changed situation arising out of the signing of the armistice a justification for changing many of the regulations governing the exportation of certain commodities which the continuance of the war has heretofore made it necessary to conserve much more strictly than present circumstances require. The board is accordingly revising as rapidly as possible its rules of conservation, and in conformity with such revision the conservation lists will be materially abbreviated. The board is already in a position to grant many export licenses which have heretofore been refused for reasons of conservation. Briefly, all indications point to a reasonably quick return to the normal condition of foreign trade. The situation therefore increases the importance of renewing interest in the subject on the part of those whose pre-occupation in more absorbing pursuits has turned their attention away from it, and of expanding this interest among those to whom the subject is comparatively new.

The fact should be steadily kept in view that no element of our national life should be more interested than labor in the development of our foreign trade. The full effects of the war upon labor, in its largest and broadest sense, are yet to be disclosed. While in Great Britain, France, Germany, Russia, Austria and Italy man-power has been sensibly diminished by war casualties, in all those countries large numbers of women have taken up industrial occupations formerly pursued only by men. It remains to be seen how large a proportion of these women will seek to continue their new occupation in time of peace. The result may easily be that the total supply of labor in the countries chiefly affected will be greater than before the war. In this country, with our large influx of women into mechanical pursuits, and the comparatively small reduction of our man-power through war losses, we may have a considerably increased supply of labor. It will obviously benefit all our people to find suitable and fully compensated occupation for all the hands at our disposal.

DEMAND INTERNATIONAL COOPERATION

I found occasion to say at the Fourth National Foreign Trade Convention of American business held in Atlantic City in September, 1917, that the United States could fairly congratulate itself on having used no unfair means to seize the commerce of other people—on having used no unfair advantage of the industrial extremity of others. On the contrary, we had accepted the responsibility of carrying on enterprises which had been begun by European capital whose further supplies were interrupted. Our entrance into new fields of business enterprise abroad had been a benefit not only to the countries where the investments had been made, but to the original investors whose work had been taken up at the point where they were compelled to lay it down. Before our entrance into the war and since, there has been pursued, consistently and resolutely a policy which I take leave to characterize as being one of exceptional magnanimity. We are certainly entitled, on this score if on no other, to demand that after the war full, frank, and free co-operation among the nations must be the rule, if economic recovery is to be quick and thorough. It will continue through all generations to be a subject of legitimate pride for America that in the crisis of the world's destiny they had no ends to serve at the prompting of national selfishness or national self-interest. The material profit which the war has brought to the nation has not been earned by any methods of which we should be ashamed. The success of spiritual elevation and moral force which the war has brought this people will probably be reckoned in years to come as the real gain that is its share of victory in the world's Armageddon.

Japanese Cotton Goods in Greece

(*Continued from page* 186)

The general opinion is, as well as mine, that in case after the war is over there is to be such a difference in the price between the Japanese and American sheeting, or even less, they would prefer to buy the Japanese goods. The most contracts have been placed with the Toyo Cotton Mill of Japan, and each piece is stamped "For Chop a Dragon Superior Sheetings C. Made in Japan."

Also I have learned that a few days ago the firm of Dem. Nicelaides, from Alexandria, made an offer by telegram to A. Miaeulis of Athens for 6,000 pieces of Japanese Dragon sheeting at 45s. per piece, f. o. b. steamer Port Said, December delivery.

Besides gray sheetings, I have discovered that many merchants from Greece have placed orders with Japanese manufacturers for underwear, hosiery, in cotton and silk; cotton fancy goods, all kinds of silk manufactured goods, etc., in large quantities. Some have arrived in Port Said, while others are on the way.

CAN'T GET AMERICAN DELIVERIES

Please note that under to-day's conditions the Japanese manufacturers are accepting orders, payment against documents to a bank in Port Said, and Americans want payment against New York warehouse receipt; therefore, all merchants prefer the Japanese terms of payment, because they have less banking expenses, specially for interest, and they are sure that when they pay for them them will be able to get them quickly at Piraeus, for there are regular steamers between Port Said and Piraeus. I have many customers who placed their orders through me with American houses in the year 1916. They paid for them in the middle of 1917; the year 1918 is over and still the goods remain in New York warehouses. Therefore, how do you expect merchants to place new orders under these conditions? All merchants here are very much discouraged about the American market, and for this reason they have done a tremendous business in textiles with Spain. I estimate for goods received between November, 1917, and October, 1918, the value must be 80,000,000 drachmas, or about $16,000,000. I am afraid that hereafter merchants will place large orders for Japanese goods on account of the shipping facilities. The two merchants who received last week the 1,500 pieces ordered them last July, and in the end of October the goods arrived in Piraeus. Also most of the textile stocks of the Greek merchants which were in Manchester, Eng., amounting to 2,000 tons, arrived in Piraeus from February to October, 1918, some by direct steamers and some transshipped from Alexandria, Egypt.

I am informed that two large Greek houses expect soon to send their men to Japan, also that here they are expecting Japanese travelers.

Many firms in Athens are regularly receiving samples and quotations from Japan, and I, during the year 1917 up to July, 1918, have not been able to receive any, although the firm which I represent of New York City used to mail them to me.

Two months ago the Greek Government appointed for the first time a charge d'affaire in Tokio, Japan, and I am quite sure also that the Japanese Government will send her representative to Athens.

It has been almost decided by the Japanese Government to induce the Japanese steamship company, the Nippon Yusen Kaise, to introduce regular direct sailings from Yokohoma, Japan, for Piraeus, Smyrna, Constantinople, Varna, Kustendji and Odessa, and, of course, by this direct connection the trade of Japan with Greece and Levant markets would be greatly increased.

I hope soon we shall have general peace and that the American Government will help the American export trade, because I can predict from now that there will be great competition from British and Japanese goods against American merchandise.

THE ARGO MILLS CO.

COTTON YARNS

Office
314 LAFAYETTE BUILDING
PHILADELPHIA, PA.

Mills
GLOUCESTER CITY
NEW JERSEY

140,000 SPINDLES

YARNS

Dunster—Clayborn—Bickmore

Carded and Combed
Single and Ply

Cops
Cones
Tubes
Skeins
Beams
Ball Warps
Sowams Silver Merino
Mule and Frame-Spun

WARREN MANUFACTURING CO.

WARREN
R.I.

2,600 LOOMS

CLOTHS

Sowams Talcum Flannellette

Carded and Combed

Plains
Twills
Satteens
Cotton and Silk Plains
Cotton and Silk Novelties
American Viscose Fibre Silk Shirtings
Novelty-Coloring

Development of an American Dyestuff Industry

Intimate Relation of Explosives and Dyes Illustrated in Case of du Pont Company

IT is not the intent of this article to describe in detail the dyestuffs plant of E. I. du Pont de Nemours & Co. at Wilmington, Del. Such detailed description if not accompanied by an understanding of what the development means and what is behind the enterprise and in the minds of those who saw the vision and the possibilities of an industry self-contained and complete in every particular, would be a mere catalogue of buildings which would lack the human element necessary to give force to a description of the industry in question and the outlook for its future as a key industry in this country.

It is difficult to visualize a plant occupying some three hundred acres and comprising more than eighty buildings and to realize that this unit has been completed since July, 1917, when the process of construction began. Nor should it be forgotten that this is not a completed enterprise and that the mere process of construction occupying the year and a half that it did, did not mark the beginning of the proposition, for it had its inception in the minds of those who have built up a wonderful industrial plant, involving the manufacture of explosives as well as many other products entering into a variety of uses that seems almost incredible. Just how long the subject of a dyestuffs industry had been considered by these important industrial factors is a matter on which those who are in a position to make a statement are unwilling to talk. Suffice it to say that long before the war, the subject of developing such an enterprise had been under advisement and it is certain that before the construction commenced, intensive study and planning had been going on for at least two years.

The evidence of this preliminary work is very patent to the educated eye. Those acquainted with the intricacies of the dyestuffs business can see in the arrangement of the buildings and the development of the physical plan that was adopted before any construction began that the controlling idea of those who have builded this enterprise has been to work from the ground up, to leave no preliminary or intermediate steps untaken, in order that the final development may be well rounded out and as complete as human intelligence and study can make it.

As an evidence of the controlling spirit that has dominated this dyestuffs industry, acknowledged by those competent to judge to be one of the most interesting developments industrially in this country, is the physical arrangement and disposition of the various buildings that comprise the plant. These buildings are so situated as to make for the greatest efficiency and economy in production. As they are viewed from an eminence, it is noticed that each building has space on either side for further expansion. This is looking toward the future, which might be regarded as the watchword or slogan of the enterprise as a whole. It is not until one investigates the individual buildings, however, that it is discovered that they are arranged in units and progressively. The du Pont Co. did not make any statement with regard to its ability to furnish dyestuffs to the textile industry of this country until it had developed their manufacture from the very foundation. And so the various buildings comprehend the production of intermediates in various series which in turn lead naturally and directly into other buildings where the finished product is developed.

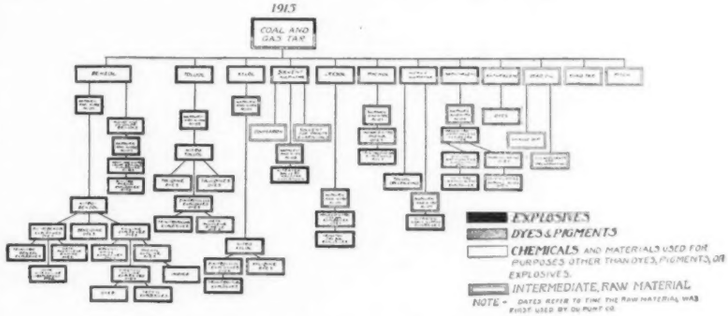
The question that has often been asked in connection with the development of a domestic dyestuffs industry have been whether American plants would be able to so construct their physical productiveness that they could eventually turn out dyes that would show in all their processes of manufacture a cost that was not inordinate and an efficiency that made for the realization of a profit. The mere location of the eighty buildings at the Wilmington plant, when one discovers the continuity of the developing product, is sufficient proof that this factor in dyestuff production has been one of the controlling if not the controlling impulse in its consummation. There has been a systematic construction of this plant which has had for its basis a progressive development, each section of the product being developed to its finality as far as necessary for the production of the finished product from the basic raw material, while each series is also complete in itself, enabling the company to supply dyes in a commercial way, though leaving room for development as the demand from the textile or other industries grows. This system is one which warrants the long period of research and investigation that has preceded any construction work on the immense plant now giving form to the theory developed by experts in the industry.

In connection with the question of profit, the prices at which dyestuffs are being sold, whether emanating from the du Pont Company or from any other unit in the American dyestuffs industry, cannot of themselves tell a story of ability or inability to produce at a profit. With an enterprise such as du Pont, the long and tedious process of research and experimentation, the amount of money involved in the construction of the plant itself and in its equipment after construction and in the employment of a force for the various activities involved mean an overhead that the sale of dyestuffs for six months or a year would be impossible to overcome. The story is told that a manufacturer visiting the Wilmington plant was so impressed with the capabilities of the company in the line of production that he expressed the belief it would be possible very shortly to reduce the price of the product which he was receiving from them. He was told that he could have his choice immediately of continuing on the basis at which he was buying dyes from the company or of taking them at actual cost, such cost to be determined by a responsible audit company. When the cost sheets were shown him and he was convinced that in the case of a particular product he was buying the cost was 2¼ times per pound the amount he was paying, he was very well satisfied to continue on the existing basis.

As a factor in the overhead that gives some little idea of the thoroughness with which the company has gone into the matter of perfecting this industry, it may be noted that in its employ, according to one of the officials of the company, are over 10 per cent. of the living graduate chemists of the country. And these trained men cannot be secured at any such figure as is possible in Germany. It is an interesting sight to see the various heads of departments, as well as some of the subordinates, at luncheon around a large table in one of the buildings in the center of which are three or four telephones. No meal is uninterrupted, while frequently all of the instruments are in use, calls going to and from various departments on matters that cannot wait until the meal has been concluded. These are young men for the most part, all of whom will acknowledge that their service in the company is one of the most valuable experiences that they could have and their enthusiasm over the work in which they are engaged in itself is an augury of the ultimate immensity of the enterprise as well as a prophecy of their own development as important integral factors in the industry.

The question is frequently asked, according to du Pont officials, as to the date on which they will be in position to supply certain specific colors. It has been the policy of the company to shun publicity until such time as they are able not only to satisfy the needs of the trade to their utmost, but also until such time as the colors produced have proven themselves in the fabrics for which they are intended and such fabrics are on the market.

The outstanding development upon which the du Pont Co. can pride itself is the erection of an indigo plant begun July, 1917, and delivering the finished product in February, 1918. While a comparison may not be absolutely fair in all details, considering the foundation upon which the domestic company had to work, yet it is worth while bearing in mind that the development of the production of synthetic indigo in Germany occupied a period of at least fifteen years—from 1882 to 1897. There were many rumors before the company began its distribution of indigo as to when it would complete this division of its plant as a commercial entity, but there was a steadfast refusal to make any announcement to the trade before it was in position to deliver a sufficient quantity to supply all domestic requirements and until it was known that the product was giving entire satisfaction. It is dangerous to ask and even more dangerous to answer the question, When will American dyestuff manufacturers be able to supply all the colors of the pre-war period? The weakness of the domestic industry before the war was that it made the simplest and most easily produced colors on which Germany relied for its tonnage and which it was willing to reduce in price in order to meet competition because it was upon the finer colors, less generally used, that it calculated its profit. There are certain colors that have not been developed to their ultimate conclusion. It is safe to say that the du Pont Co. is determined that every color which is necessary to the textile industry, as well as to other industries consuming dyestuffs, shall be worked out to a commercial success, but the announcement of these successes and of their ability to supply the trade with these colors will not be made until every preliminary has been perfected and the finished product is fully established as a completed fact of a commercial character.


1913
COAL AND GAS TAR
EXPLOSIVES
DYES & PIGMENTS
CHEMICALS AND MATERIALS USED FOR PURPOSES OTHER THAN DYES, PIGMENTS, OR EXPLOSIVES.
INTERMEDIATE, RAW MATERIAL
NOTE - DATES REFER TO TIME THE RAW MATERIAL WAS FIRST USED BY DU PONT CO.

PROGRESS CHART OF DU PONT DYESTUFF PRODUCTION

Much has been said and written on the close relations of explosive and dyestuff manufacturing The crude materials and the sources from which these come are essentially the same and it is only natural that the du Pont Co. should have stated in their announcement of July, 1917, that they had "(A) the necessary raw materials for the manufacture of coal tar dyes, products of this country and free from European control; (B) chemical and engineering organizations second to none in magnitude and scientific attainment; (C) unequalled plant and laboratory facilities, and (D) an adequate commercial organization." The natural development of the explosive manufacturing company into the dyestuff producing organization is graphically illustrated in the accompanying chart which is part of a progress chart published by the du Pont Co. in a booklet entitled "From Munitions of War to Munitions of Peace." The following excerpt from this booklet gives in concise statement the underlying basic reasons for its existence and its policy in better form than any long dissertation on these matters by an outsider. This booklet says: "The tremendous importance and significance of the du Pont enterprise depend upon two things: (1) ability to meet the Germans in the matter of quality, and (2) establishment of the industry firmly in

order that no after-the-war activities of Germans shall have power to disrupt our newly established enterprise which will set us free forever from dependence upon German dyes with which to color our goods.

"The effort of the du Pont Co. has been to build from the ground up and to establish the dye industry upon a permanent basis from which it could never be dislodged whatever world conditions may be at the close of the war."

Tariff Commission Dyestuff Report

Recommendations of Changes in Present Act and Draft of Proposed Bill

THE industrial emergency created by the war has resulted in a remarkable development of the chemical industries of the United States. Fundamental changes have occurred which will have a permanent influence on the conditions of international competition. From the viewpoint of those interested in tariff problems, no branch of this development is of more importance than that which has affected the coal-tar industries. The manufacture of coal-tar dye-stuffs, medicinals, and photographic chemicals was of little significance in the United States before the war. Three-fourths of the world's supply of coal-tar dyes was produced in Germany, and German interests controlled one or more of the essential materials for at least half of the dyes manufactured outside of German territory. Switzerland, the producer of second importance, depended upon German sources for her coal tar and for many other necessary chemicals. Further, Great Britain, France, the United States, Austria, and Russia resorted largely to German materials for the small fraction which they manufactured for their own consumption. In general they offered little competition to the great German industry.

One of the effects of the outbreak of the European war was an acute shortage of dyes in this country. At the earnest request of representatives of the textile industry Congress in 1916 passed a law raising the duties on dyestuffs and other closely related products derived from coal tar, including intermediates, photographic chemicals, medicinals, flavors, synthetic phenolic resins, and explosives. The act of September 8, 1916, has in a large measure accomplished its purpose of encouraging the investment of capital in the dye industry in the United States. American chemists and business men have met the emergency with conspicuous success by the creation of a new industry. The American wool, cotton, and silk mills during 1917 produced a larger volume of goods than ever before in their history. The dyes needed were supplied by the new American dyestuff industry, with relatively small aid from Switzerland. So great has been the advance that the export of American dyes has surpassed in value, although not in tonnage or in variety, the annual imports into the United States before the war. There has also been a corresponding development of other branches of the coal-tar products industry, especially in the manufacture of medicinals and photographic chemicals.

Although the law has been successful in its main purpose, it has become clear that it is not so worded as to give effect completely and perfectly to the presumable intent of Congress. The commission begs to bring to the attention of Congress some difficulties of interpretation, some administrative difficulties, and also some questions of policy which should be considered in order to make the revisions necessary for the success of our domestic industry.

After a careful study of the phraseology and probable working of the present law, as well as of the development of the industries of the United States, the commission concludes that there are several ways in which the presumable intent of Congress can be evaded.

One possibility of evasion arises from the fact that the act of 1916 does not repeal specifically rates of duty in the old law which are in conflict with the intent of the new. It is true that the act of 1916 contains a provision that "so much of said act of 1913 or any existing law or parts of law as may be inconsistent with this title are hereby repealed." But the enumeration of certain specific commodities in the act of 1916 and the failure to enumerate others specifically, opens the possibility of a construction of the act of 1916 probably not contemplated by Congress.

Another possibility of evasion arises from the circumstance that certain commodities classed as intermediates, which in the act of 1916 are in Group II and are subject to a duty of 15 per cent. ad valorem and 2½ cents a pound, are transformable into finished products at very slight expense and by very simple processes. There are, for example, certain intermediates called leuco acids and leuco bases (i. e., colorless compounds), which are not strictly dyes, yet have been carried in the process of manufacture to a point where only an insignificant and inexpensive operation is needed to convert them into dyes. Under the act of 1916 they will inevitably be imported in the leuco state—not quite finished as dyes, but very nearly finished; they will then be converted into dyes within this country, cheaply and easily. They will be imported at the intermediate duty of 15 per cent. plus 2½ cents, and yet will compete directly with completed dyes of domestic manufacture. A striking instance is that of indoxyl, an intermediate which is in the last stage in the succession of processes by which synthetic indigo is obtained. Indoxyl is a colorless substance, not a dye, but by the mere process of dissolving it in water and blowing air (oxygen) through it, the last chemical step in the production of synthetic indigo is completed, and the commercial indigo is produced. Indoxyl is dutiable under the present act as an intermediate; indigo is dutiable as a dye. It is more than probable that under the terms of the present act importation will take the form of indoxyl; and this will be virtually the importation of indigo, competing with indigo of domestic manufacture.

A third possibility of evasion, or if not evasion, of unexpected complication, arises from the circumstance that dyes as ordinarily dealt with in commerce are in most cases not dyes in a chemically pure form, but are weakened or reduced in strength by mixing with water, salts, or other diluent. Synthetic indigo, for instance, is ordinarily sold in the form of a paste, containing 20 per cent of pure indigo and 80 per cent of inert matter, chiefly water. In the case of other dyes also, including most of the important ones, there is a recognized standard commercial strength. Prices are habitually quoted on the basis of this usual strength. In the case of still other dyes, however, there is no recognized commercial strength. The duty of 5 cents per pound, imposed by the act of 1916, was presumably intended to apply to the dyes in their usual commercial strength, and not to the pure forms which ordinarily are unknown in commerce. The wording was, however, not so framed as to insure this. Under the present wording of the law the duty is levied and apparently must be levied, on the weight of the dye as imported, regardless of its concentration or strength. This permits dyes to be imported in a pure state or at least a highly concentrated state and then to be reduced to the usual commercial strength after having passed through the customhouse. The effective duty is consequently much lower than was presumably intended.

This situation, however, can not be dealt with by any specific legislative prescription of the commercial or standard strength of the several dyes. In many cases, no trustworthy basis now exists for a definite standardization of commercial strength. Under these circumstances, the commission believes it best that discretion be given to the administrative department and that the Secretary of the Treasury be authorized to determine from time to time what is the dutiable strength of the several dyes, with discretion to make changes in accord with gradually ascertained and tested commercial practice. Discretionary power of this sort will enable experts to recommend to the Secretary of the Treasury standards of strength conforming approximately to commercial usage, with the possibility of modifying them as experience might indicate.

This mode of dealing with the situation would be facilitated by requiring a statement on all imported packages of the exact constituents and strength of dyestuffs contained therein. Such a statement would make easier the accurate appraisal of imports of dyes for the ad valorem duty. Appraisal is exceptionally difficult owing to the difficulty of identification and variability in strength. The requirement would serve further as a guarantee to purchasers of the identity and strength of the dyestuffs which they were buying. The commission is satisfied that there has been much dishonesty in the dyestuffs trade, and that something analogous to the provision of the pure food laws in regard to misbranding would be of great advantage. It is accordingly recommended, both as an aid in administering the law and as a safeguard for purchasers, that every imported package shall contain specific statement showing the constituents and strength of the contents.

PROPORTION OF DOMESTIC PRODUCTION AND IMPORTS

Difficulties of administration and also some difficult questions of policy arise in connection with that clause of the act of 1916 which reads as follows:

If, at the expiration of five years from the date of the passage of this act, the President finds that there is not being manufactured or produced within the United States as much as sixty per centum in value of the domestic consumption of the articles mentioned in Groups II and III of section 500, he shall, by proclamation, so declare, whereupon the special duties imposed by this section on such articles shall no longer be assessed, levied, or collected.

The President has requested the Tariff Commission to ascertain the facts upon which Executive action can be based. The commission accordingly has taken a census of the production during 1917 of dyestuffs and other coal-tar products covered by the law, and is prepared to continue the taking of such a census from year to year hereafter. A report stating the results of this census has been published. The inquiries upon which it is based have, however, indicated some difficulties to which the commission now invites attention.

The determination of production in the United States is entirely feasible. That of total domestic consumption, however, is not so. It would seem impracticable to secure statistical returns direct from every consumer. The alternative is to define consumption as the sales of the American manufacturers plus imports, exports being then deducted. But this procedure involves many difficulties. Export statistics are not available in sufficient detail. It is doubtful whether they could be secured in the detail and with the accuracy needed. Even more difficult is the ascertainment of the value of imports. Statistics in terms of physical quantities (tons or pounds) are obviously not significant for the purpose in hand, since the commodities are immensely variable in quality and value. The only significant comparison is one in terms of value. But the value of the imports, for proper comparison with the domestic production, is extremely difficult to secure in terms comparable to the value of domestic output. The values recorded in the import statistics are foreign market values. These must be converted into terms of consumption values in order to be comparable with the values of domestic products consumed. The importers sell the commodities not on the basis of foreign values, but, of course, add the import duty and also a profit, which varies enormously for the different articles. Some sales are made direct to manufacturers, some to jobbers, and some to retail dealers, with different terms in the several cases. An accurate valuation of the "consumption" of the imported articles thus becomes a highly complicated matter.

Morover, the language of the clause is not entirely clear. It might be interpreted to mean that each article mentioned by the name in Group II and each class of articles mentioned in Group III is to be considered separately and that each article or class is to be dealt with separately. Under such an interpretation it might result, for example, that 60 per cent. of the domestic consumption of aniline (an intermediate) is being made in the United States, and that, therefore, aniline would remain subject to the specific duty; whereas other intermediates produced and derived from aniline might not be subject to the specific duty. Unexpected and undesirable maladjustments would arise in the relation of duty between different raw materials and between raw materials and finished products.

Another interpretation of this clause would be to consider Group II, intermediates, as one unit, and Group III, finished products, as a separate unit.

If so interpreted, it is probable that the act would be least difficult of administration; yet it is doubtful whether its language would justify this interpretation.

Still another way to interpret the language would be to treat Groups II and III as one whole, adding the total production in the two classes and comparing this total with the total valuation of imports. This would seem a proper interpretation of the language of the act as it stands. It would, however, cause the articles in Group II to be virtually counted twice, or in some cases, even four or five times. These articles (intermediates) are used in the manufacture of intermediates of a more advanced stage, and eventually in that of the finished articles in Group III, and form a constituent part of the value of the finished articles. To count them in Group II perhaps several times and again in valuing the commodities in Group III would be open to criticism.

The commission recommends that if the clause is to be retained it be formulated in more precise terms by reckoning as the value of domestic production the total value of commodities belonging in Group III plus the value of commodities in Group II not used in the manufacture of the finished articles in Group III. There would remain, nevertheless, difficulties in administration of the clause so formulated, because of the difficulty of ascertaining which intermediates have been used in the production of finished commodities and which have not.

The commission takes the liberty of suggesting to Congress the possibility of repealing entirely, for the present, this 60 per cent clause. In view of the changed conditions which have arisen since the entrance of the United States into the war, the clause may not appear to be so necessary a safeguard as it did at the time of its enactment.

SPECIFIC EXEMPTION CONSIDERED

In still another direction the commission suggests that there be further consideration, namely, as regards that clause in the act of 1916 which exempts certain finished dyestuffs, medicinals, and flavors from the specific duty of 5 cents a pound. Most articles in Group III are subject to a duty of 30 per cent ad valorem plus 5 cents a pound specific. Certain enumerated articles, however, are exempted from the specific (5 cents) duty. These are "natural and synthetic alizarin and dyes obtained from alizarin, anthracene, and carbazol, natural and synthetic indigo, and all indigoids, whether or not obtained from indigo, and medicinals and flavors." The class of dyes thus exempted from the specific duty are important and much used.

Natural alizarin obtained from the madder plant had been used for centuries. It was the first of the natural dyes to be made from coal tar (1868). The artificial alizarin obtained from anthracene (itself extracted from coal tar) has almost driven the natural alizarin out of use, and numerous important derivatives have been made. The dyes are used on both wool and cotton and are very fast and of good quality.

The fastest and best cotton dyes known ("indanthrene" and related dyes) are "obtained from anthracene and carbazol" and therefore exempted from the specific duty. This class of dyes can be made in nearly all shades and they are especially suited to the manufacture of ginghams. Indigo is the most important of all the excepted dyes. How many dyes will be further exempted under the term "indigoids" is uncertain. The term indigoid has no common and generally accepted scientific or commercial meaning. It can only mean a dye similar to indigo; but the degree of similarity and the question whether the similarity involved is in chemical structure, in method of manufacture, or in method of dyeing must be settled by future court decisions.

REASONS FOR DOMESTIC BACKWARDNESS

The American dye industry is especially backward in the development of the very classes of dyes which are exempted from the 5 cents per pound specific duty. The production of indigo in the United States during 1917 was only 274,771 pounds, or 3.5 per cent of the imports during the fiscal year ending June 30, 1914. A much larger production of indigo during 1918 is assured. In addition to indigo three other dyes belonging to the classes exempted from the specific duties were made in the United States during 1917, but the amounts produced were so small that the production must be regarded as experimental rather than commercial. Many so-called "alizarin" or "anthracene" dyes were made, but these names are deceptive, since with the exceptions just noted they were not "obtained from alizarin or anthracene."

The reasons for the lack of development of these branches of the American industry are complex. They are (1) patent difficulties, (2) technical, (3) connected with tariff and the commercial situation.

(1) German control of the patents has prevented the manufacture of many of these dyes in the United States. Under the provisions of the Trading with the Enemy Act of October 6, 1917, the Federal Trade Commission is authorized to issue licenses to American manufacturers. Licenses have already been issued to manufacture several medicinals and dyes. German-owned patents are no longer an obstacle to the development of the American industry. In England these German patents were annulled soon after the outbreak of the war and the English are now making these dyes.

(2) The manufacture of these newer dyes is technically more difficult than the manufacture of the azo dyes —i. e., the older nonpatented dyes whose manufacture has been developed here. It is, therefore, unfortunate that the American manufacturers have been compelled by the patent laws to lose valuable time in gaining manufacturing experience in the new field.

(3) The same differentiation in the treatment of the various classes of dyes which appears in the act of 1916 is traceable in earlier acts in an even more pronounced form. The classes of dyes now dutiable at 30 per cent (but not subject to the 5 cents specific duty) were admitted free under the act of 1913, whereas those now dutiable at 30 per cent plus 5 cents per pound were formerly dutiable at 30 per cent. The American dye industry before the war was, therefore, concentrated entirely in the manufacture of dyes of the classes formerly dutiable (such as the azo colors derived from anilin and benzidine).

When the European war began the American manufacturers were confronted with the problem of multiplying their output in the minimum time, and they naturally followed the line of least resistance by increasing their output of the anilin and similar dyes with which they had actual manufacturing experience instead of by taking up new and strange dyes with their unsolved technical problems. An additional reason for the development of these anilin dyes was that the necessary crudes and intermediates were more readily produced in the United States. On the other hand, the separation of anthracene (the fundamental material for alizarin) from American tar in a condition pure enough for making alizarin had not been developed commercially in the United States at the outbreak of the war. The separation of anthracene and carbazol from the tar is far more difficult technically than the recovery of benzol, toluol, and naphthalene, which are the materials from which nearly all the dyes now made in the United States are derived. It was only in midsummer of 1917 that anthracene became available in significant amounts in the American market. This has been the chief obstacle in the development of alizarin manufacture in the United States, an obstacle which is now about to be overcome.

The exemption of alizarin and indigo from the special duty of 5 cents per pound in the act of 1916 partly accounts for the relatively slow development of these branches of the dye industry in the United States, but this has been heretofore a less important factor than the others just described, especially the patent situation and the lack of anthracene. Very recently the other obstacles to development have been removed.

In order that the American dyestuff industry may be in a position to compete with the German when peace is restored the dyes most in demand should be made in this country, especially indigo, alizarin, and the vat dyes derived from anthracene. There can be no doubt that the consumers (the American textile mills) will return to the use of these newer and better dyes when supplies are again available. Unless the American dye manufacturers are in a position to satisfy this demand the consumers will once more become dependent on foreign supplies.

Now that American supplies of anthracene are available and patent licenses are obtainable there are no longer any fundamental obstacles in the path of the American manufacturers. The equilization of the rates of duty on the different varieties of dyes would be a valuable aid to the growth of a hitherto backward branch. It would allow the normal development of the industry, with a natural adjustment between the different dyes determined on the one hand by the cost of production of the different dyes and on the other hand by the demand, which is dependent on the fastness, color, and adaptability to different uses.

In view of the industrial changes that have been pointed out Congress may wish to reconsider the clause in the existing law exempting certain classes of dyes from the specific duty.

The commission submits herewith the draft of a bill which is suggested as a substitute for Title V of the act of September 8, 1916.

The reasons for the proposed changes, other than those discussed above, are given in detail in the accompanying report, prepared by Dr. Grinnell Jones, special expert of our staff. This report also contains some additional technical information in regard to the questions discussed above.

In conclusion, it should be said that this report deals only with the act of September 8, 1916, with the coal-tar and dyestuffs industries as affected by that act, and with the ways of carrying out the presumable intent of Congress when passing the act. The act was designed to promote the development of the American coal-tar and dyestuffs industries in a well-defined plan, but contains some provisions which experience and further scrunity have shown to be inconsistent with that general plan.

The commission, however, is making a careful study of the economic and industrial conditions of the chemical industries in general and will submit its report to Congress on this subject at a later date.

PROPOSED DYESTUFF BILL

The following bill is proposed by the Committee to amend the present act:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Title V of an act entitled "An act to increase the revenue, and for other purposes," approved September 8, 1916, be, and hereby is, amended to read as follows:

TITLE V.—*Dyestuffs.*

SEC. 500. That on and after the day following the passage of this act, except as otherwise specially provided for in this title, there shall be levied, collected, and paid upon the articles named in this section when imported from any foreign country into the United States or any of its possessions, except the Philippine Islands and the islands of Guam and Tutuila, the rates of duties which are prescribed in this title, namely:

FREE LIST

Group I. Acenaphthene, anthracene having a purity of less than thirty per centum, benzol, carbazol having a purity of less than sixty-five per centum, cumol, cymene, fluorene, methylanthracene, methylnaphthalene, naphthalene having a solidifying point less than seventy-nine degrees centigrade, pyridin, quinolin, toluol, xylol, dead or creosote oil, anthracene oil, pitch of coal tar, pitch of blast-furnace tar, pitch of oil-gas tar, pitch of water-gas tar, crude coal tar, crude blast-furnace tar, crude oil-gas tar, crude water-gas tar, all other distillates of any of these tars which on being subjected to distillation yield in the portion distilling below one hundred and ninety degrees centigrade a quantity of tar acids less than five per centum of the original distillate, all mixtures of any of these distillates and any of the foregoing pitches, and all other products that are found naturally in coal tar, whether produced or obtained from coal tar or other source, and not otherwise specially provided for in this title, shall be exempt from duty.

DUTIABLE LIST

Group II. Acetanilid not suitable for medicinal use, alphanaphthol, amidobenzoic acid, amidonaphthol, amidophenetol, amidophenol, amidosalicylic acid, aminoanthraquinone, anilin oil, anilin salt, anthraquinone, arsanilic acid, benzaldehyde not suitable for medicinal use, benzalchlordie, benzanthrone, benzidin, benzidin sulphate, benzoic acid not suitable for medicinal use, benzoquinone, benzovychloride, benzychloride, betanaphthol not suitable for medicinal use, brombenzol, chlorbenzol, chlorophthalic acid, cinnamic acid, cumidin, dehydrothiotoluidin, diaminostilbene, dianisidin, dichlorphthalic acid, dimethylanilin, dimethylamidophenol, dimethylphenylenediamin, dinitrobenzol, dintrochlorbenzol, dutronaphtha-

Fast Colors Produced in America

Acid Colors

Alizarine Sapphire
Fast Wool Blue R.
Fast Wool Cyanone 3 R.

Vat Colors

Indigo N. A. C. 20% Paste
Alizarine N. A. C. 20% Paste
Carbanthrene Olive G.

Sulphur Colors

Sulphur Blacks
Sulphur Brown 2 G.
Sulphur Brown C. G.
Sulphur Yellow B. W.
Sulphur Brown 4 G.
Sulphur Brown T. D.
Sulphur Blue L.
Sulphur Blue S. A. P.

Chrome Colors

Alizarol Yellow G. W.
Alizarol Orange R.
Alizarol Brown B.
Chrome Blue G. N. Conc.
Chrome Black 2 B. N.
Superchrome Black 4 B. N.
Alizarol Yellow 3 G.
Alizarol Brown R. B.
Alizarol Black 3 G.
Chrome Blue R. B. N. Conc.
Chrome Blue 3 R. Y. N. Conc.
Superchrome Black 6 B. P.
Superchrome Blue B. Double
Serichrome Green B.
Serichrome Blue R

Developed Colors

Diazine Black H. Ex.
Paranitraniline N. A. C.
Primuline N. A. C.

Bring us your dyestuff problems. The technique of the application of dye stuffs, to meet the particular requirements of each customer, is as complex as the production of these dyestuffs. Our technical department and well equipped laboratories are at the service of our customers without charge or obligation.

National Aniline & Chemical Company

Incorporated

***Main Sales Office:* 21 Burling Slip, New York.**

Boston Charlotte Chicago Cincinnati Hartford
Kansas City Milwaukee Minneapolis Philadelphia

lene, dinitrophenol, dinitrotoluol, dioxynaphthalene, diphenylamin, ethylbenzyl, anilin, hydroxyphenylarsinic acid, metanilic acid, methylanthraquinone, naphthylamin, naphthylenediamin, nitranilin; nitroanthraquinone, nitrobenzaldehyde, nitrobenzol, nitronaphthalene, nitrophenol, nitrophenylenediamin, nitrosodimethylanilin, nitrotoluol, nitrotoluylenediamin, phenol, phenylenediamin, phenylhydrazine, phenylnaphthylamin, phenylglycocoll, phenylglycocollorthocarboxylic acid, phthalic acid, phthalic anhydride, phthalimid, resorcin not suitable for medicinal use, salicylic acid and its salts not suitable for medicinal use, sulphanilic acid, thiocarbanilid, thiosalicylic acid, tetrachlorphthalic acid, tetramethyldiaminobenzophenone, tetramethyldiaminodiphenylmethane, toluol sulphochloride, toluol sulphamid, tribromphenol, toluidin, tolidin, toluylenediamin, xylidin, or any sulphoacid or sulphoacid salt of any of any of the foregoing, or of any of the products provided for in Group I; all other products by whatever name known which are employed in the manufacture of any of the products provided for in Group II or III and which are obtained, derived, or manufactured in whole or in part from any of the foregoing or from any of the products provided for in Group I; anthracene having a purity of thirty per centum or more, carbazol having a purity of sixty-five per centum or more, metacresol having a purity of ninety per centum or more, naphthalene having a solidifying point of seventy-nine degrees centigrade or above, orthocresol having a purity of ninety per centum or more, paracresol having a purity of ninety per centum or more; all distillates of coal tar, blast-furnace tar, oil-gas tar, and water-gas tar which on being subjected to distillation yield in the portion distilling below one hundred and ninety degrees centigrade a quantity of tar acids equal to or more than five per centum of the original distillate; all mixtures, including solutions, consisting in whole or in part of any of the foregoing except sheep dip and medicinal soaps, not otherwise specially provided for in this act; all the foregoing not colors, dyes, or stains, color acids, color bases, color lakes, leuco-acids, leuco-bases, indoxyl, indoxyl compounds, ink powders, photographic chemicals, medicinals, flavors, synthetic resinlike products, synthetic tanning materials, or explosives, and not otherwise specially provided for in this title, fifteen per centum ad valorem.

Group III. All colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, leuco-acids and leuco-bases whether colorless or not, indoxyl and indoxyl compounds; ink powders; photographic chemicals; acetanilid suitable for medicinal use, acetphenetidin, acetylsalicylic acid, antipyrine, benzaldehyde suitable for medicinal use, benzoic acid suitable for medicinal use, betanaphthol suitable for medicinal use, phenolphthalein, resorcin suitable for medicinal use, salicylic acid and its salts suitable for medicinal use, salol, and other medicinals; sodium benzoate; saccharin, methyl salicylate, coumarin, and other flavors; synthetic phenolic resin and all resinlike products prepared from phenol, cresol, phthalic anhydride, coumaron, indene, or from any other article or material provided for in Group I or II, all of these products whether in a solid, semisolid, or liquid condition; synthetic tanning materials; picric acid, trinitrotoluol, and other explosives except smokeless powders; all of the foregoing when obtained, derived, or manufactured in whole or in part from any of the products provided for in Group I or II; natural alizarin and natural indigo, and colors, dyes, stains, color acids, color bases, color lakes, leuco-acids, leuco-bases, indoxyl, and indoxyl compounds obtained, derived, or manufactured in whole or in part from natural alizarin or natural indigo; natural methyl salicylate or oil of wintergreen or oil of sweet birch; natural coumarin; and all mixtures, including solutions, consisting in whole or in part of any of the articles or materials provided for in this group, thirty per centum ad valorem.

SEC. 501. That on and after the day following the passage of this act, in addition to the duties provided in section five hundred, there shall be levied, collected, and paid upon all articles contained in Group II a special duty of 2½ cents per pound, and upon all articles contained in Group III a special duty of 5 cents per pound: *Provided*, That the special duties herein provided for on colors, dyes, or stains, whether soluble or not in water, color acids, color bases, color lakes, leuco-acids, leuco-bases, indoxyl, and indoxyl compounds, shall be based on standards of strength which shall be established by the Secretary of the Treasury, and that upon all importations of such articles which exceed such standards of strength the special duty of 5 cents per pound shall be computed on the weight which the article would have if it were diluted to the standard strength, but in no case shall any such articles of whatever strength pay a special duty of less than 5 cents per pound: *Provided further*, That beginning six months after the date of passage of this act no package containing any such color, dye, stain, color acid, color base, color lake, leuco-acid, leuco-base, indoxyl, or indoxyl compound shall be permitted to entry into the United States unless such package and the invoice shall bear a plain, conspicuous, and truly descriptive statement of the identity and percentage, exclusive of diluents, of such color, dye, stain, color acid, color base, color lake, leuco-acid, leuco-base, indoxyl, or indoxyl compound contained therein: *And provided further*, That beginning six months after the date of passage of this act, no package containing any such article shall be admitted to entry into the United States if it, or the invoice bears any statement, design, or device regarding such article or the ingredients or substances contained therein which is false, fraudulent, or misleading in any particular. In the enforcement of this section the Secretary of the Treasury shall adopt standards of strength which shall conform as nearly as practicable to the commercial strengths in use in the United States prior to July first, nineteen hundred and fourteen.

Beginning September ninth, nineteen hundred and twenty-one, such special duties shall be annually reduced by twenty per centum of the rate imposed by this section until September eighth, nineteen hundred and twenty-five, after which date such special duties shall no longer be assessed, levied, or collected.

The Secretary of the Treasury is hereby authorized to make regulations for the enforcement of the provisions of this title.

SEC. 502. That paragraphs twenty, twenty-one, twenty-two, twenty-three, one hundred and seventy-nine, three hundred and ninety-four, four hundred and fifty-two, and five hundred and fourteen; and the provision for salicylic acid in paragraph one; and provisions for salol, phenolphthalein, acetanilid, acetphenetidin, antipyrine, acetylsalicylic acid, and aspirin in paragraph eighteen; and the provision for benzoate of soda in paragraph sixty-seven; and the provisions for carbolic and phthalic acids in paragraph three hundred and eighty-seven of an act entitled "An act to reduce tariff duties and to provide revenue for the Government, and for other purposes," approved October third, nineteen hundred and thirteen, are hereby repealed: *Provided*, That all articles which may come within the terms of paragraphs one, five, thirty-seven, forty-six, sixty-three, five hundred and one, and five hundred and thirty-eight of said act of October third, nineteen hundred and thirteen, as well as within the terms of Group I, II, or III of section five hundred of this act, shall be assessed for duty or exempted from duty, as the case may be, under this act.

SEC. 503. That on and after the day when this act shall go into effect all of the foregoing goods, wares, and merchandise previously imported, for which no entry has been made, and all of the foregoing goods, wares, and merchandise previously entered without payment of duty and under bond for warehousing, transportation, or any other purpose, for which no permit of delivery to the importer or his agent has been issued, shall be subject to the duties imposed by this act, and to no other duty, upon the entry or the withdrawal thereof: *Provided*, That when duties are based upon the weight of merchandise deposited in any public or private bonded warehouse by the Secretary of the Treasury upon the weight of such merchandise at the time of its entry.

SEC. 504. Except as otherwise herein specially provided, this act shall take effect on the day following its passage.

Domestic Dyestuffs During War

The Dye and Intermediate Industry Under the War Industries Board's Control

By *Dr. V. L. King, Chief, Artificial Dyes and Intermediates Section*

THE Artificial Dyes and Intermediates Section of the War Industries Board wishes to take this opportunity to express again its appreciation of the enthusiastic co-operation and fine courtesy that the Color Industry as a whole has shown during all the period of the war. Under the most trying circumstances the manufacturers of artificial dyes and intermediates built an industry that was in operation in time to save the entire textile manufacturing business of the country from the far-reaching and disastrous effects of an actual dye famine.

Before the outbreak of the war the American dyestuff industry had been represented by a few small manufacturers scattered about the country who were merely assembling the imported German intermediates into some of the finished dyes. A first attempt to organize an industry independent of the German manufacturers was immediately frustrated. In 1900 a few companies organized for the manufacture of that most widely used and basic intermediate—aniline oil. The German manufacturers, alarmed at the possibilities of that enterprise, immediately flooded the American market and killed the project. They were able, by a continuation of this sort of policy to prevent the creation of an intermediate industry and our dye makers remained entirely at their mercy. Recognized and encouraged by their Government and their people, the Germans were able to so dominate the world's market that they could afford to give their product away in the United States in order to prevent the growth of any dyestuff industry here.

The war period changed much of this situation. The whole-hearted support of the textile industries, the enthusiasm of the American people, and the encouragement of the United States Government, which had not been forthcoming prior to the war, began to take form. The great textile industry had not been deeply interested in the creation of an American dyestuffs industry, because colors formed only a moderate proportion of their manufacturing cost, and their needs were being so met by the Germans that they were apathetic regarding the future of the dye maker in America. When these colors became unavailable, however, not only the textile industry but the whole American public awoke to the realization of the fact, heretofore not even suspected, that dyestuffs were an essential ingredient in almost every useful article. The silk, cotton, woolen worsted, leather, paint, paper, ink and similar industries suddenly found themselves vitally interested in colors. They were confronted with the inability, often, of not being able to finish $100,000 worth of product because of the lack of $1,000 worth of dye.

A REAL DYESTUFF INDUSTRY

The color makers, who before the war had been engaged in merely assembling the dyes from intermediates manufactured in Germany, recognized at once the necessity and tremendous importance of creating a real dyestuff and intermediate industry in this country, and they set to work to accomplish it despite the fact that there was no adequate tariff protection on the most important ingredients of dyes—the intermediates. Probably one hundred million dollars of capital have been invested in this business since the beginning of the war, and to-day nearly all of the intermediates necessary for the dyes are being made on a commercial scale. The dye maker's work is not yet complete, but he has created approximately 200 dyes equal in every respect in shade, strength and working quality to the pre-war types, and he has made them from American raw materials and American intermediates in quantity and variety sufficient to keep the textile mills in operation. The American market consumes normally some three hundred dyes, but the American dye maker is steadily reducing the number of unavailable colors and shades. The development not only is recent but is still in vigorous process, and in the next ninety days several more of the most complicated dyes will be available in quantity.

Credit should be given to the Vegetable Dyewood Industry, which for a while came under the control of this Section of the War Industries Board, for having stepped into the breach and increased its production some four fold during the early periods when the artificial dye and intermediate business was passing through a period of feverish construc-

American Made
Immediately Available

COAL *to* DYESTUFF

The high quality of our products is made possible

First: because the whole process of manufacture is performed by us.

This includes:—

Mining the coal.

Coking the coal.

Recovery of by products as Benzol, Toluol, Napthalene, etc.

Manufacturing from these products the various intermediates required.

The manufacture of the dyes themselves.

Second: a careful standardization before delivery.

This insures uniform shipments so that the user can depend on his colors always coming to him the same.

Third: the policy of "quality first" always, plus the determination to build a permanent 100% American Dyestuff industry.

Our line of colors is now so extensive that we do not publish a list of products, but invite your inquiries.

With quality goes service also and our laboratories and chemists are at your service for the submission of your problems or your samples for matching.

Newport Chemical Works, Inc.

PASSAIC, NEW JERSEY

BRANCH SALES OFFICES:

Boston, Mass. Philadelphia, Pa. Greensboro, N. C.

WORKS—Carrollville, Wis.
Passaic, N. J.

GENERAL OFFICES—First Nat'l Bank Bldg., Milwaukee, Wis.

NEWPORT TRADE MARK

NEWPORT TRADE MARK

tion and before production had yet reached its present level. Soon the shortage of ships rapidly reduced the importation of the raw materials for this business and a rapid decrease in the production of vegetable dyes set in. By this time, however, the manufacturers of aniline dyes were beginning to deliver and were in time to save the day.

NEED OF INGREDIENTS FOR WAR

The color works supplied the Army and Navy during the war with certain absolutely indispensable ingredients (diphenyla, dimethylomilino, etc.), for smokeless powder and high explosives in such large quantities, that the development of certain classes of colors was seriously retarded. As the explosive requirements increased it became necessary to restrict the use of the raw materials for dye making purposes, and the production of certain classes of colors was practically prohibited. During this period the War Industries Board was supported and aided in the most loyal and patriotic manner by all of the manufacturers of dyes. The tremendous demands of the explosive maker for the same raw materials that are necessary to the color maker, established the supply of these materials in this country, and as the requirements for colors bore only a small percentage to the requirements for explosives, the raw material for the industry became assured. The coke and coal tar industry built elaborate machinery for the recovery of by-products necessary for explosives, and even the illuminating gas plants in the various cities installed machinery for stripping these same products from the gas. Without the war, however, and the national emergency, this tremendous upheaval in the coke, and coal tar industry, so necessary to the production of these basic and, for the dyestuff industry indispensable raw materials would never have been accomplished. Since the signing of the armistice it has been possible to remove the restrictions on basic raw materials, and the dye manufacturer may now get his full supply of toluol, xylol, ascetic acid, etc., and the further development of the intermediate manufacture may continue. The United States is producing more of these raw materials than any other country is, therefore, the logical source of supply for the outside world for manufactured intermediates. In some branches a productive capacity has been created which will rapidly develop an exportable surplus of these high-priced commodities.

This Section of the War Industries Board owes tribute to the able work of Dr. F. J. Schoellkopf, Jr., whose name is well known in the dye industry and who directed the work until joining the colors last September.

The writer assumed the duties of Chief of the Section during the period when the need for raw materials for explosives threatened to cause a severe disturbance of the dye industry. The shortage of xylol, for instance, was so great that it was arranged to allocate this material, and the exportation of dyes made from it was stopped. These colors were at once released after the armistice was signed and it had become possible to divert xylol to them from high explosives. Fortunately, it has now become possible to remove all restrictions.

CO-OPERATION IN WAR PROGRAM

An interesting example of the way in which the dye makers voluntarily cooperated with the war program in refraining from using any materials needed for the manufacture of explosives is afforded in the use of nitrate of soda. The color maker used nitrate of soda which has to be imported from Chile, and as all our explosives are also made from it, it was necessary to keep the consumption of this product, also called Chile saltpetre, down to a minimum. The manufacture of dyes did not consume more than one per cent of the total importation, and three ships brought in on one trip enough for one year's supply. The development of the industry has gone on with the most scrupulous regard for the prosecution of the war, and not only was saltpetre saved and used frugally, but improvements were made entirely eliminating its use in certain operations. All azo colors, for example, are made with nitrate of soda, which formerly was manufactured from nitrate of soda (saltpetre) and for this purpose alone some 150 tons monthly would have been required. One of our intermediate makers, however, was so successful in eliminating the use of saltpetre for this purpose that to-day only 25 per cent. of the nitrate of soda used in the entire country is still made from saltpetre. Before the war nearly all of this material was imported. Surely it would be difficult to find a more signal triumph of American genius and determination.

An elaborate scheme for the conservation of freight space, metal for containers, labor, etc., so highly necessary during the last few months, was, when presented to the dye manufacturers, cheerfully indorsed, and although this Section will come to direct the work, the trade association of the dye makers will, it is hoped, continue to carry it out. The shipment of sulfide of soda in fused form instead of crystal form, which is two-thirds water, was only one of many such savings.

The enormous demands for khaki and olive drab uniforms by the Army created during the months just preceding the signing of the armistice an acute shortage of sulfide of soda. The demands of the army were double the greatest possible quantity the country could produce. There was no time to increase production facilities and the necessity of curtailing the use of sulfide of soda for civilian purposes became apparent. Makers were ordered to fill only 25 per cent. of orders going into civilian cloth, and recommendations were prepared prohibiting the use of khaki cloth for civilian purposes and the use of sulfide of soda for dyeing black hosiery. Most of us would have begun to wear unbleached stockings if the German army had not collapsed, as both the dye makers and hosiery makers showed a most patriotic spirit of sacrifice and were prepared to execute our orders with the utmost readiness.

DIFFICULTY OF GETTING SUPPLIES

Our dye manufacturers suffered not only from restrictions at home but also from pressure from abroad. The Swiss color makers combined to form a foreign trade association and attempted to obtain the release of certain scarce raw materials from this country under the promise of returning the dyes made therefrom to the United States only, but this section vigorously opposed such a policy and it was adopted. Recent developments point somewhat to Germany's hand in this matter, and it may have been just one more attempt on their part to regain the lost American market.

One of the raw materials largely used in the color business, as well as in the photographic and medicinal chemicals, is textile mills, and in the manufacture of nutgalls. Those come largely from China, and the shortage of ships threatened to reduce the imports very materially. It was necessary for us, through the War Trade Board and the Shipping Board, to reduce the imports to a minimum and to allocate them when they arrived. It was feared that in working up the galls into tannin, gallic acid and pyrogallic acid too much of one might be made creating a very serious shortage in one of the other products. For example, if the limited amount of galls imported should be largely worked up into pyrogallic acid, might be able to develop for moving picture film, but we would not be able to manufacture gallocyanin blue—a very important blue duo; or, *vice versa;* and unless sufficient tannin also were made the textile mills would not be able to dye certain colors for which tannin is used as a mordant. The importers, therefore, before obtaining license to import were required to sign a pledge to submit to us the proportions of the products into which they intended to convert the galls. About 60 per cent. of the galls imported supply the photographic and medicinal trade with tannin, pyrogallic acid and gallic acid, in the preparation of fifty-five tanning, forty pyrogallic acid and five gallic acid. Forty per cent. of the imported galls supply the dye and color trade with these materials in the proportion ten, twenty and seventy, respectively, and in order not to disturb the manufacture of photographic and medicinal materials, as well as dyestuffs, it was necessary to prevent dislocation of these proportions.

For a long time there was a scarcity of the chemicals manufactured from wood—wood alcohol, acetone, formaldehyde and acetic acid, and as all of these are largely used in making dyes, color making, in certain lines, notably indigo, was delayed. Nearly 60 per cent. of the total output of acetic acid, for example, goes into dyes or dyeing, and nearly half of this for the making of the dyes themselves. In spite of the shortage of acetic acid and also of chlorine the manufacture of indigo has been developed to a point where its large scale production is now only a matter of time.

AMERICAN INDUSTRY SHOULD BE MAINTAINED

This section of the War Industries Board gave the manufacturers of colors and the users of colors an opportunity recently to express their desires, through their War Service Committees in a meeting in Washington, in regard to the protection that might be necessary to safeguard continued existence of the color industries in this country. Both the dye manufacturers and the dye consumers were unanimous in their belief, and it is particularly gratifying to note the enthusiasm of the great textile industries on this point that the American dye stuff industry should be maintained at all costs. It was the feeling that America knew the price she had paid for the lack of dye industry when war broke out and was prepared to pay any price to keep this industry now that it had been created.

A resolution was presented to the War Industries Board, and which is now being considered, to urge the creation of a dye commission on which not only the dye manufacturers and the dye consumers, but also the Government should have representation, and that this commission should be endowed with power to license all importation of dye stuffs and intermediates, both as such and on the cloth. It is felt that the need for such a commission is very great and it is to be hoped that it may be created, that it may be given sufficient power to carry out its work effectively, and that it may be composed of men who have the interest of the whole country at heart.

DR. V. L. KING,
Chief, Artificial Dyes and Intermediates Section.

Multiple Representation in Industry

(*Continued from page* 120)

days, now devotes his energies for the most part to countless repetitions of a single act or process, which is but one of perhaps a hundred operations necessary to transform the raw material into the finished product.

The worker loses sight of the significance of the part he plays in industry and feels himself to be merely one of many cogs in a wheel. All the more, therefore, is it necessary that he should have contact with men engaged in other processes and fulfilling other functions in industry, that he may still realize he is a part, and a necessary though it may be inconspicuous part, of a great enterprise.

The sense of isolation and detachment from the accomplishments of industry, which too often comes to the workers of to-day, can be overcome only by contact with the other contributing parties. Where such contact is not possible directly, it must be brought about indirectly through representation. In this way only can common purpose be kept alive, individual interests safeguarded and the general welfare promoted.

The co-operation in war service of labor, capital, management and government has afforded a striking and most gratifying illustration of this truth.

The basic principles governing the relations between the parties to industry are as applicable in the successful conduct of industry to-day as in earlier times.

The question which now confronts the student of industrial problems is how to re-establish personal relations and co-operation in spite of changed conditions. The answer is not doubtful or questionable, but absolutely clear and unmistakable: It is, through adequate representation of the four parties in the councils of industry.

III

Various methods of representation have been developed, conspicuous among which are those of labor unions and employers' associations.

As regards the organization of labor, it is just as proper and advantageous for labor to associate itself into organized groups for the advancement of its legitimate interests as for capital to combine for the same objects. Such associations of labor manifest themselves in collective bargaining, in an effort to secure better working and living conditions, in providing machinery whereby grievances may easily and without prejudice to the individual be taken up with the management. Sometimes they provide benefit features, sometimes they seek to increase wages, but whatever their specific purpose, so long as it is to promote the well-being of the employes, having always due regard for the just interests of the employer and the public, leaving every worker free to associate himself with such groups or to work independently, as he may choose, they are to be encouraged.

But organization is not without its dangers. Organized capital sometimes conducts itself in an unworthy manner,

Quality Products for Prompt Delivery

Dyes
Intermediates
Dry and Pulp Colors
Fancy Lake Colors
Chemicals

Manufactured by

THE SHERWIN-WILLIAMS CO.

DYE, CHEMICAL AND COLOR SALES DEPT.

SAMPLES AND PRICES ON REQUEST

CLEVELAND
NEW YORK
CHICAGO

SWP
COVER THE EARTH

contrary to law and in disregard of the interest both of labor and the public. Such organizations cannot be too strongly condemned or too vigorously dealt with. Although they are the exception, such publicity is generally given to their unsocial acts that all organizations of capital, however rightly managed or broadly beneficent, are thereby brought under suspicion.

Likewise it sometimes happens that organizations of labor are conducted without just regard for the rights of the employer or of the public; methods and practices are adopted which, because unworthy or unlawful, are deserving of public censure. Such organizations of labor bring discredit and suspicion upon other organizations which are legitimate and useful, just as is the case with improper organizations of capital, and they should be similarly dealt with.

We ought not, however, to allow the occasional failure in the working of the principle of the organization of labor to prejudice us against the principle itself, for the principle is fundamentally sound.

In the further development of the organization of labor and of large business, the public interest as well as the interest of labor and of capital will be furthest advanced by whatever stimulates every man to do the best work of which he is capable; by a fuller recognition of the common interests of employers and employed; and by an earnest effort to dispel distrust and hatred and to promote good-will.

THE NEED FOR FULLER REPRESENTATION

Labor unions have secured for labor in general many advantages in hours, wages and standards of working conditions. A large proportion of the workers of the country, however, are outside of these organizations, and unless somehow represented are not in a position to bargain collectively. Therefore, representation of labor to be adequate must be more comprehensive and all inclusive than anything thus far attained.

Representation on the employers' side has been developed through the establishment of trade associations, the purpose of which is to discuss matters of common interest and to act in so far as is legally permissible and to the common advantage, along lines that are generally similar. But here also representation is inadequate. Many employers do not belong to employers' associations.

REPRESENTATION OF LABOR AND CAPITAL

Since the United States went into the war, the representation of both labor and capital in common councils has been brought about through the War Labor Board, composed equally of men from the ranks of labor and capital, together with representatives of the public. When differences have arisen in industries where there was no machinery to deal with such matters, the War Labor Board has stepped in and made its findings and recommendations. In this way, relatively continuous operation has been made possible and the resort to the strike and lockout has been less frequent.

A method of representation which is constructed from the bottom up, has been in operation for varying periods of time in a number of industries in this country, including the Standard Oil Company of New Jersey, the Colorado Fuel & Iron Company, the Consolidation Coal Company and others.

PRINCIPLE OF REPRESENTATION APPLIED

This plan of representation is worthy of serious consideration. It begins with the election of representatives in a single plant, and is capable of indefinite development to meet the complex needs of any industry and of wide extension so as to include all industries. Equally applicable in industries where union or non-union labor or both are employed, it seeks to provide full and fair representation to labor, capital and management, taking cognizance of the community.

Thus far it has developed a spirit of co-operation and good-will which commends it to both employer and employe.

PROCEDURE IN EFFECTING CO-OPERATION

The outstanding features of this plan of industrial representation are as follows:

Representatives chosen by the employes in proportion to their number, from their fellow workers in each plant, form the basis of the plan.

Joint committees, composed of equal numbers of employes or their representatives and of officers of the company are found in each plant or district.

These committees deal with all matters pertaining to employment, and working and living conditions, including questions of co-operation and conciliation, safety and accident, sanitation, health and housing, recreation and education.

Joint conferences of representatives of employes and officers of the company are held in the various districts several times each year.

There is also an annual joint conference, at which reports from all districts are received and considered.

Another important feature of the plan is an officer known as the president's industrial representative, whose duty it is to visit the plants currently and confer with the employes' representatives, as well as to be available always for conference at the request of the representatives.

Thus the employes, through their representatives chosen from among themselves, are in constant touch and conference with the management and representatives of the stockholders in regard to matters pertaining to their common interest.

PROCEDURE IN MATTERS OF ADJUSTMENT

The employes' right of appeal is a third outstanding feature of the plan. Any employe with a grievance, real or imaginary, may go with it at once to his representatives.

The representatives not infrequently find there is no ground for the grievance and are able so to convince the employe.

But if a grievance does exist, or dissatisfaction on the part of the employe continues, the matter is carried to the local boss, foreman or superintendent, with whom in the majority of cases it is amicably and satisfactorily settled

Further appeal is open to the aggrieved employe, either in person or through his representatives, to the higher officers and to the president.

If satisfaction is not to be had from the company, the court of last appeal may be the industrial commission of the state, the state labor board or a committee of arbitration.

Experience shows that the vast majority of difficulties which occur in an industry arise between the workmen and the subordinate officers who are in daily contact with them. Petty officials are sometimes arbitrary, and it is by their attitude and action that the higher officers and the stockholders are judged.

Obviously the right of appeal from the decisions of subordinate officials is important, even if seldom availed of, because it tends of itself to modify their attitude.

A further feature of the plan is what may be termed the Employes' Bill of Rights. This covers such matters as the right to caution and suspension before discharge, except for such serious offenses as are posted; the right to hold meetings at appropriate places outside of working hours; the right without discrimination to membership or non-membership in any society, fraternity or union; and the right of appeal.

SOME OF THE RESULTS OF REPRESENTATION

Where this plan has been in operation for a considerable length of time, some of the results obtained are:

First: Uninterrupted operation of the plants and continuous employment of the workers, resulting in larger returns for both capital and labor.

Second: Improved working and living conditions.

Third: Frequent and close contact between employes and officers.

Fourth: The elimination of grievances as disturbing factors.

Fifth: Good-will developed to a high degree.

Sixth: The creation of a community spirit.

Furthermore, the plan has proved an effective means of enlisting the interest of all parties to industry, of reproducing the contacts of earlier days between employer and employe, of banishing misunderstanding, distrust and enmity, and securing co-operation and the spirit of brotherhood.

Under its operation, the participants in industry are being convinced of the soundness of the proposition that they are fundamentally friends and not enemies, that their interests are common, not opposed. Moreover, prosperity, good-will and happiness are resulting. Based as the plan is upon principles of justice to all, its success can be counted on so long as it is carried out in a spirit of sincerity and fair play.

REPRESENTATION CAPABLE OF WIDEST EXPANSION

Here, then, would seem to be a method of providing representation which is just, which is effective, which is applicable to all employes whether organized or unorganized, to all employers whether in associations or not, which does not compete or interfere with existing organizations or associations, and which, while developed in a single industrial corporation as a unit, may be expanded to include all corporations in the same industry and ultimately all industries.

Just what part labor organizations and employers' associations can best take in such a plan remains to be worked out, but certain it is that some method should be devised which will profit to the fullest extent by the experience, the strength and the leadership of these groups.

While doubtless defects will appear in this plan and other methods more successfully accomplishing the same end may be developed, at least it is proving that in unity there is strength, and that a spirit of co-operation and brotherhood in industry is not only idealistically right but practically workable.

V

If the points which I have endeavored to make are sound, might not the four parties to industry subscribe to an industrial creed somewhat as follows:

1. I believe that labor and capital are partners, not enemies; that their interests are common, not opposed; and that neither can attain the fullest measure of prosperity at the expense of the other, but only in association with the other.

2. I believe that the community is an essential party to industry and that it should have adequate representation with the other parties.

3. I believe that the purpose of industry is quite as much to advance social well-being as material prosperity; that, in the pursuit of that purpose, the interests of the community should be carefully considered, the well-being of employes fully guarded, management adequately recognized and capital justly compensated, and that failure in any of these particulars means loss to all four parties.

4. I believe that every man is entitled to an opportunity to earn a living, to fair wages, to reasonable hours of work and proper working conditions, to a decent home, to the opportunity to play, to learn, to worship and to love, as well as to toil, and that the responsibility rests as heavily upon industry as upon government or society, to see that these conditions and opportunities prevail.

5. I believe that diligence, initiative and efficiency, wherever found, should be encouraged and adequately rewarded, and that indolence, indifference and restriction of production should be discountenanced.

6. I believe that the provision of adequate means of uncovering grievances and promptly adjusting them, is of fundamental importance to the successful conduct of industry.

7. I believe that the most potent measure in bringing about industrial harmony and prosperity is adequate representation of the parties in interest; that existing forms of representation should be carefully studied.

8. I believe that the most effective structure of representation is that which is built from the bottom up; which includes all employes, which starts with the election of representatives and the formation of joint committees in each industrial plant, proceeds to the formation of joint district councils and annual joint conferences in a single industrial corporation, and admits of extension to all corporations in the same industry, as well as to all industries in a community, in a nation, and in the various nations.

9. I believe that the application of right principles never fails to effect right relations; that "the letter killeth but the spirit giveth life"; that forms are wholly secondary, while attitude and spirit are all important; and that only as the parties in industry are animated by the spirit of fair play, justice to all and brotherhood, will any plan which they may mutually work out succeed.

10. I believe that that man renders the greatest social service who so co-operates in the organization of industry as to afford to the largest number of men the greatest opportunity for self development and the enjoyment of those benefits which their united efforts add to the wealth of civilization.

Never was there a more profound belief in human life than today. Whether men work with brain or brawn, they are human beings, and are much alike in their cravings, their aspirations, their hatreds, and their capacity for suffering and for enjoyment.

ATTITUDE OF LEADERS UNDER RECONSTRUCTION

As the leaders of industry face this period of reconstruction, what will their attitude be?

H. A. METZ & CO., Inc.

122 HUDSON ST.

BOSTON
PROVIDENCE
PHILADELPHIA
MONTREAL

NEW YORK

CHICAGO
SAN FRANCISCO
CHARLOTTE
ATLANTA

AMERICAN MADE PRODUCTS:

Dyestuffs, Colors, Intermediates, Sizing and Finishing Materials, etc.

Dyestuffs
Colors
Sizing and
Finishing Materials

Produced by

Consolidated Color and Chemical Co.
Newark, N. J.

Dyestuffs
and
Intermediates

Produced by

Central Dyestuff and Chemical Co.
Newark, N. J.

Will it be that of the standpatters, who ignore the extraordinary changes which have come over the face of the civilized world and have taken place in the minds of men; who, arming themselves to the teeth, attempt stubbornly to resist the inevitable and invite open warfare with the other parties in industry; and who say, "What has been and is, must continue to be—with our backs

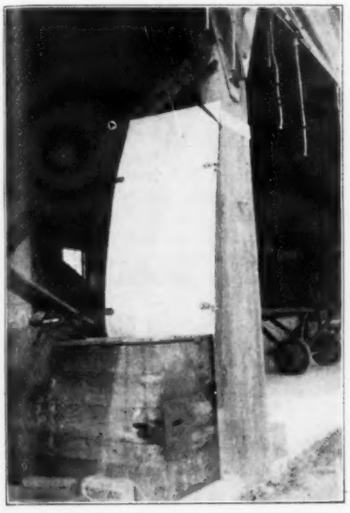


FIG. 1—WING PANEL COVERED WITH FIRST COTTON FABRIC (GRADE B)

to the wall we will fight it out along the old lines or go down in defeat"?

Those who take such an attitude are wilfully heedless of the fact that its certain outcome will be financial loss, general inconvenience and suffering, the development of bitterness and hatred, and in the end submission to far more drastic and radical conditions imposed by legislation, if not by force, than could now be amicably arrived at through mutual concession in friendly conference.

Or will their attitude be one in which I myself profoundly believe, which takes cognizance of the inherent right and justice of the principle underlying the new order; which recognizes that mighty changes are inevitable, many of them desirable; and which does not wait until forced to adopt new methods, but takes the lead in calling together the parties to industry for a round-table conference to be held in a spirit of justice, fair play and brotherhood, with a view to working out some plan of cooperation which will insure to all those concerned adequate representation, and afford to labor an opportunity to earn a fair wage under such conditions as shall leave time not alone for food and sleep, but also for recreation and the development of the higher things of life?

RESPONSIBILITY FOR DEVELOPMENT OF THE FUTURE

In conclusion let it be said that upon the heads of those leaders—it matters not to which of the four parties they belong—who refuse to reorganize their industrial households in the light of the modern spirit, will rest the responsibility for such radical and drastic measures as may later be forced upon industry if the highest interests of all are not shortly considered and dealt with in a spirit of fairness.

Who, I say, dares to block the wheels of progress and to let pass the present opportunity of helping to usher in a new era of industrial peace and prosperity?

Textile War Work of Bureau of Standards

(*Continued from page* 124)

IMPORTANT ESSENTIALS

An airplane wing covering may be considered as a rectangular membrane defined by the rib spacing and the length of the rib, and supported on all four sides. The rectangle is subjected to pressure, and its behavior under pressure, together with the resistance of the material to tear, are the principal considerations. There are two kinds of tearing stresses to which a wing covering is subjected: One, in which a projecting tongue of fabric is torn from the body of the material; two, in which a slit or hole causes a pressure tear or splitting of the material. These determinations as applied to textiles are quite new and the portion of the laboratory shown in Figure (2) was devoted very largely to these considerations. The apparatus for determining tongue tear resistance is not shown, but it is similar to the conventional testing machine with the substitution of a spring recording head in place of the inclination balance.

COTTON LACING CORDS DISPLACED LINEN

The perfection and application of the Liberty motor to our planes caused much unfavorable conjecture in regard to the fabrics, as it was found that neither the linen nor the cotton would stay on. A careful investigation of the situation demonstrated that the fabrics were improperly applied, as the lacing cords tore through the fabric and in many cases the conventional linen lacing cords failed because of the vibrations induced by the propeller. A special tape was devised to be applied over the fabric and under the lacing cords to carry the stresses at the lacing points. The tape was constructed of fourteen ends of 17s 3 or 4-ply and 24 picks per in. of 18s 2-ply cotton yarn. Special lacing cords of cotton were devised which had a much higher resistance to repeated stress than the linen cords. The apparatus for determining the resistance to repeated

FIG. 2—APPARATUS FOR TESTING BURSTING STRESSES OF AERONAUTICAL FABRICS, TEXTILE LABORATORY, BUREAU OF STANDARDS

stress is reproduced in Figure 3.

During the process of evolving a satisfactory solution of the fabric trouble with the Liberty motor, many heavier fabrics were constructed which were very satisfactory as far as resisting stresses was concerned. During this time the efforts of Major R. T. Lyman, Capt. Morgan Butler, in conjunction with those of the Pierce Manufacturing Co., the Gosnold Mills, the Nashawena Mills, and the West Boylston Manufacturing Co., under the general leadership of the Bureau of Standards may be considered to have been the active agents in solving this great problem. One fabric turned out by the Warwick Mills also deserves mention. The proper fastening of the present fabrics was the most advantageous solution, but the many fabrics and cords made during that time did much to increase the general fund of the knowledge of airplane wing coverings, and there are available at any time fabrics of any weight which will satisfy any condition or trend of airplane design.

LIGHTER FABRIC DEVELOPED

The airplane program for the coming summer called for lighter fabrics of equal factors of safety than are now being used. The characteristics of the linen fabric were departed from, and a fabric designed to satisfy the particular stresses, which had the following characteristics:

Thread count—80 x 80.

Yarn number—Warp, single 60s unmercerized.

Filling, 2/60s mercerized.

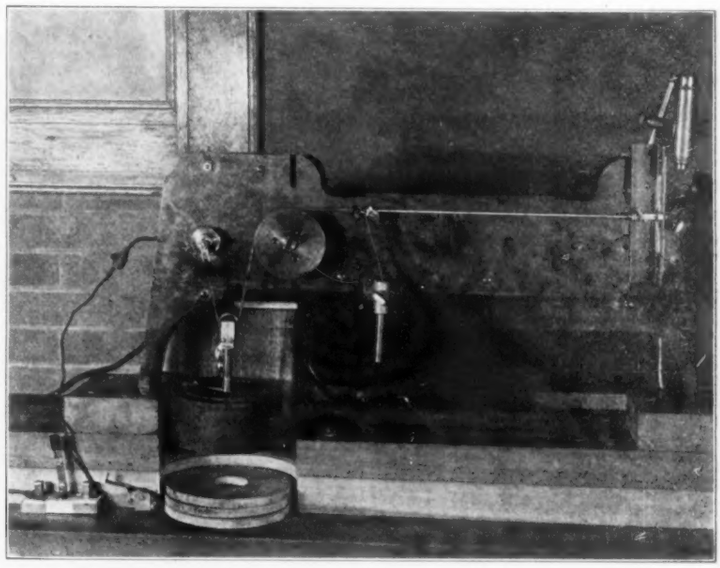


FIG. 3—MACHINE FOR TESTING REPLATED STRESSES ON LACING CORDS, TEXTILE LABORATORY, BUREAU OF STANDARDS

TABLE II.—DOPED FABRIC.

	Weight ozs. per sq. yd.	Tongue Tear Warp	Tongue Tear Filling	Burst Test P	Burst Test D	Burst Tear P	Burst Tear D
"A" Linen.....	6.0	6.45	3.83	16.2	1.02	2.5	.48
Singles, warp.....	5.4	...	4.41	24.6	1.31	3.2	.67

Weave—Plain.

Weight—3.4 oz. per sq. yd.

From the above structure, it will be noted that it is a very radical departure from the generally accepted theory of airplane fabric design, but when the behavior of a rectangular fabric under pressure is considered, the structure will be found to satisfy the stresses. The theory of such a wing covering is rather complex and space does not allow of a discussion other than an enumeration of facts which are presented in the following table which compares this fabric with the conventional fabric.

FAR SUPERIOR TO LINEN

Under the worst conditions of flight, after a rupture by a bullet or other cause, as decided upon by the engineering bureau of the Bureau of Aircraft Production, this fabric lasted approximately fifty times longer than the linen before it becomes detached from the wing. The relative factor of safety of this material may be determined from an examination of the above table. The filling carries practically all of the stresses, and the warp is designed to direct the tear across the filling. The change in structure may be thought to be similar to the change in structure from a fabric to a cord tire, but careful analysis will show that there were quite different reasons for the change.

The contribution of the cotton airplane wing covering is considered in military circles to be of the greatest

TO THE TEXTILE TRADE

The period of readjustment from a war to a peace basis, which today confronts the textile mills of America, involves many problems—particularly those concerned with the supply of needed dyestuffs—in the solution of which the house of A. Klipstein & Company is qualified to be of material assistance.

For 46 years we have been engaged in supplying the needs of the textile manufacturers of America for dyestuffs, sizings, finishers and all allied chemicals.

During this period our business has steadily increased in volume, and our commercial connections have been constantly extended. Today we have agencies in practically every market of the world and our own salesmen cover the United States and Canada.

This development has resulted from our consistent adherence to sound business methods—quality products, careful service and fair prices have been the keynote of our success.

Through our affiliated concerns, E. C. Klipstein & Sons Company and the Bulls Ferry Chemical Company, we have been prominent in the development of an American Dyestuff Industry. Through our associates, the Society of Chemical Industry in Basle, Switzerland, we have been able to supply many of the demands for colors which it has not, as yet, been possible to manufacture successfully in America.

We now extend to the textile mills of the United States and Canada the assistance and co-operation of our organization in solving post-war problems. Our well equipped laboratory and our excellent corps of chemists are at your disposal. Our exceptional sources of supply will facilitate the filling of your requirements for dyestuffs and textile chemicals of every character.

A. KLIPSTEIN & COMPANY

644-652 Greenwich Street, New York City

PHILADELPHIA CHARLOTTE PROVIDENCE BOSTON CHICAGO

value and importance, and much credit is due the American cotton manufacturer.

INSPECTION OF AIRPLANE FABRICS

The inspection of these fabrics was formulated by the Bureau of Standards, and put into effect by the Inspection Division of the Signal Corps. During the early stages of the production of cotton airplane fabrics, the inspection was done almost entirely by E. H. Davis, formerly of the Bureau of Standards, who took an active part in the development of the first cotton airplane fabrics.

BALLOON FABRICS

The term balloon fabric refers to the material composed of two or more plies of cloths and gas films. The greatest difficulty experienced in the balloon fabrics was the rubber gas retaining film. The cloth had already been successfully manufactured abroad, and the only improvement which suggested itself was the design of cloths which could be produced more easily. Attempts were made to do this, but it was not until the situation was taken over by Major R. T. Lyman and Captain Butler that such a procedure became possible. The cloths were changed from the very high count fine yarn fabrics to the lower count coarser yarns, and it was found that calendering produced the smooth surface which is necessary to the proper rubberizing. These cloths can be manufactured very readily. The ultimate fabrics do not exhibit any differences in the gas leakage. The specifications covering these materials are infinitely better than the older ones, but the cessation of hostilities has removed the necessity of their immediate application.

Much of the early work on balloon fabrics was done by the Balloon Fabric Committee of the Bureau in co-operation with representatives of the rubber companies and the balloon sections of the Army and Navy. The committee was composed of J. B. Tuttle, rubber; J. D. Edwards, gas; W. H. Smith, dope, and E. D. Walen, textiles.

CLOTHING MATERIAL

The problems relating to war clothing materials were centered about the most advantageous methods of manufacturing from available supplies of raw wools, and the time element prohibited any extensive research work. The solution was most readily obtained by conferences with the woolen manufacturers of the country, which the Quartermaster Department held with a great degree of success. From time to time the Bureau was called upon to make comparative tests as to the desirability of certain fabrics. The facilities of the Bureau at the beginning of the war were not fully adapted to the unusual requirements, and it became necessary to devise new methods of testing for the wearing qualities and heat retaining properties of clothing materials.

HAVE TESTS FOR WEARING PROPERTIES

Previous to this time, the tensile strength, weight and structure were considered the only necessary features of a specification, and this is correct provided the material has been found satisfactory by service tests. When it becomes necessary to change the grades of wool used in the fabric, it becomes necessary to change the values of the specifications, as it is quite definitely known that the same structure and tensile strength will not serve to duplicate the wearing qualities of clothing materials. In fact it is now known

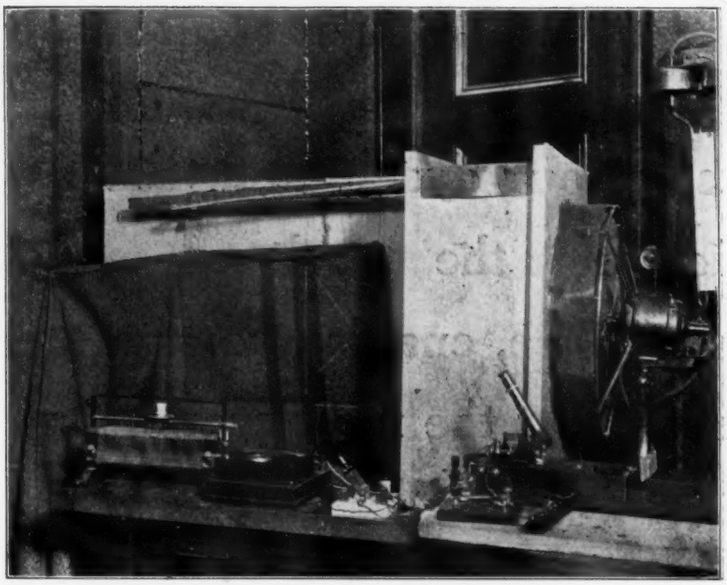
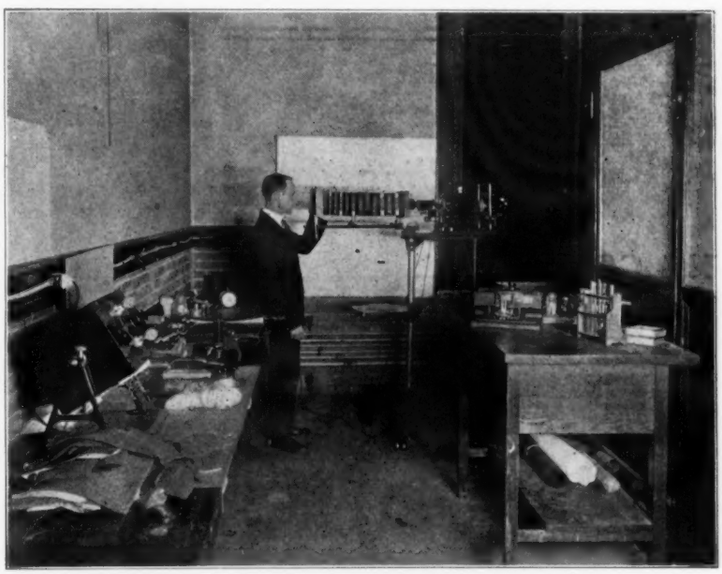


FIG. 4—APPARATUS FOR TESTING HEAT CONDUCTIVITY OF FABRICS, TEXTILE DEPT., BUREAU OF STANDARDS

FIG. 5—VIEW OF GENERAL LABORATORY, TEXTILE DEPT., BUREAU OF STANDARDS, SHOWING APPARATUS FOR TESTING FABRIC ABRASION



MICROSCOPICAL LABORATORY, TEXTILE DEPT., BUREAU OF STANDARDS

that there is no real connection between tensile strength and wearing properties. The wearing properties may be divided as follows: Abrasion of the fabric against itself; abrasion of the fabric against what may be termed a constant and standardized surface; and resistance to repeated stresses. The comfort to the body may be defined by the heat conductivity, the ease with which air can pass through the material, and the rate of moisture dissipation from the material. The serviceability may be classed as a function of these two with the addition of the color fastness. Test methods for determining these properties are practically completed and have been used in a very limited way to aid in the selection of suitable fabrics.

It was impossible to make any extensive research into these matters, as has been pointed out, but it is believed that information has been obtained adequate to serve as a rational basis for the classification of civilian fabrics and the study of the physical properties of woolen materials in general.

RELATIVE WARMTH OF FIBERS AND FABRICS

The heat retaining properties of the various types of blankets have been determined, and much of the information has been used in the purchasing of such materials by the various Government departments. It was found that the heat conductivity of the different fibers in themselves was practically the same, and that the heat retaining properties of the fabric were entirely a function of fiber arrangement. It is a demonstrated fact that a cotton blanket may be designed which will be as warm as a woolen blanket, but the conditions of outdoor military use prohibit the use of cotton blankets. In many cases it was found that the addition of cotton did not affect the desirable properties of woolen blankets and uniform fabrics, and that some shoddies and noils were of advantage.

NEW CLASSIFICATION OF FABRICS NEEDED

The study suggested above would appear to demonstrate that the classification of fabrics according to the raw materials used is not a proper one, but the classification according to the performance would appear to protect the user, and would be of great advantage to the skillful manufacturer, and would overcome the feeling that all shoddy materials are adulterants and hence not good.

The heat conductivity apparatus is shown in Fig. 4. The process consists in the measurement of the amount of energy dissipated from a plate supplied with heat at a known rate and covered with the fabric being tested, and the conversion of the energy into the conventional heat units.

The photograph, Fig. 5, shows the general laboratory. At the left are shown two of the abrasion machines, which have given very good service and have permitted satisfactory duplication of tests. The process consists in abrasing the materials for a given time and subsequently measuring the loss in strength and resistance to repeated stresses.

STANDARDIZING MATERIALS AND TEST METHODS

The centralization of purchases and the standardization of materials and specifications under the direction of Colonel Roberts is one of the greatest steps which have been taken by the Quartermaster Department. The Bureau of Standards was represented on all of the standardization committees, and has

THE use of our dyeing and tanning extracts, which are the result of our forty-nine years' experience, enables you to produce the desired results at the most economical cost.

J. S. YOUNG & COMPANY

Established 1869

HANOVER, PA.

Manufacturers of Quercitron Bark Extract, solid and liquid; Sumac Extract; Divi Divi; Flavine; Logwood, liquid, solid and crystals; Chestnut Oak Bark and Chestnut Wood Extract.

Sole Selling Agents for

THE J. S. YOUNG COMPANY, Baltimore, Md. - - - - - Logwood
J. S. YOUNG & COMPANY, Hanover, Pa. - - - Quercitron and Sumac
J. S. YOUNG & COMPANY, Shrewsbury, Pa. - - Flavine and Quercitron
H. E. YOUNG & COMPANY, Inc., Charlottesville, Va. - Oak Bark Extracts

given whatever assistance its facilities would allow. Practically all of the testing of fabrics in connection with this work was done at the Bureau, and every attempt was made to standardize the test methods as well as the fabrics. The work of Capt. W. S. Lewis, formerly chief of the textile section of the Bureau of Standards, and Lieut. H. D. Holmes is worthy of comment, as much of the real work relating to the standardization of fabrics was thrown upon them, and very satisfactorily executed. The results of this work are not at present available for publication, and the details must of necessity be omitted from this discussion. The results of this work are very far-reaching, as they serve to stimulate standard test methods and apparatus and to crystallize the ideas of the Government requirements.

ORDNANCE TEXTILES

The Ordnance Department was the first Government department to realize the necessity of standard specifications and adequate methods of test and a proper inspection system. It was largely through the efforts of Capt. W. S. Lewis and Lieut. H. D. Holmes that the department was in a position to issue standard specifications which defined carefully the performance of the material as well as the exact method of determining these properties. Practically all of the old specifications are very vague, and in many cases it was impossible to know anything about the desired performance. The establishment of an adequate inspection system depends almost entirely upon clear and comprehensive specifications. Without these, the decision is left entirely to the discretion of the inspector, who is not always familiar with the use and the desirable characteristics of the materials. The following discussion of a few specific fabrics may indicate the nature of the work conducted by the Ordnance Department with reference to the part played by the Bureau of Standards:

DUCK OR CANVAS

The Bureau of Standards rendered considerable assistance in the tests of several kinds of so-called standard duck, used by the Ordnance Department. These tests were made with a view to revising old specifications, and all strength tests were made by the "strip" method rather than the "grab" method, which was formerly employed.

A reduction of types was recommended, and final approval was given by the Chief of Ordnance to the five types given in the accompanying table of specifications. These types of duck have been purchased for about a year from the specifications that were drafted after the tests made at the Bureau of Standards during July and August of 1917.

WEBBING SPECIFICATIONS DRAFTED

When the present war was declared the Ordnance Department had no specifications covering the various kinds of webbing employed in textile equipment, and the Bureau of Standards rendered great assistance in allowing the Department to use its apparatus for testing purposes. The results of these tests were used as a basis for drafting specifications for webbing, and for many months the Ordnance Department has been purchasing webbing on these specifications.

Several Ordnance Department men were assigned to duty at the Bureau of Standards to make such tests as weight, strength, yarn sizes, construction, etc.

FABRIC GUN SLINGS

In the summer of 1917 the Ordnance Department began to seriously consider the employment of fabric gun slings, as the leather used in the regulation gun sling was becoming quite scarce and very expensive. Before purchasing any fabric slings, several samples of these, together with several samples of the United States regulation gun sling, were submitted to the Bureau of Standards for comparative tests. These tests showed several weak parts in both types, but particularly in the fabric type. However, the fabric gun sling was perfected, and to-day it is stronger than the leather gun sling and is considered about the equal of the leather sling under actual service tests.

The fabric gun sling is made up of two pieces of 1¼-inch webbing of 15 and 50 inches respectively. The construction of the webbing is as follows: The warp consists of 248 yarns, containing 229 front and back ends of 16-3 ply yarn and 19 binders or gutting of 12-3 ply yarn. The filling has 36 yarns per inch, made of 16-3 ply yarn. The textile strength of this webbing is more than 450 pounds.

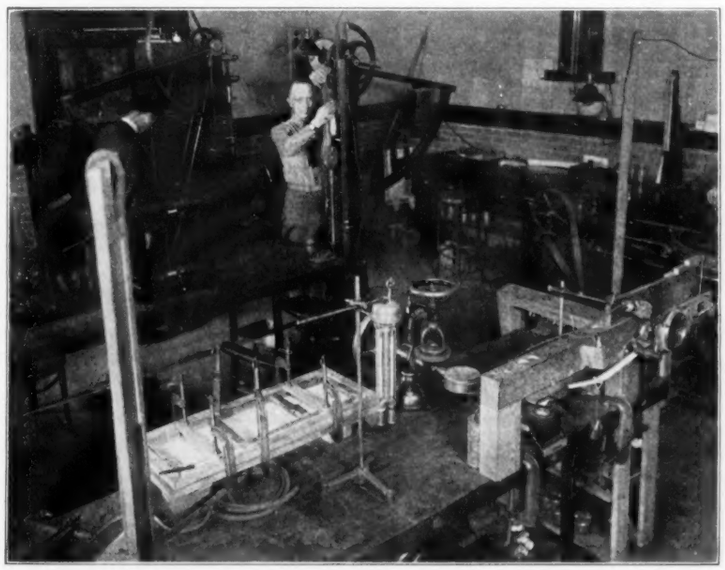
THREAD SPECIFICATIONS DEVELOPED

The Ordnance Department had no specifications covering the several kinds of threads used in stitching equipment, and the tests made at the Bureau of Standards made it possible to specify the proper yarn numbers and tensile strengths for each kind of thread employed.

Cotton threads were substituted for linen threads in the sewing of a large part of textile equipment. Cotton yarn was found to be superior to jute yarn, formerly used in certain kinds of webbing.

NEW CARTRIDGE BELT

The cartridge belt, which in pre-war times was a complete-woven article, was substituted by a belt made from duck and webbing sewed together. This latter belt was made cheaper and with much greater speed than the woven kind, and service tests have proven that it has good wearing qualities and is an excellent substitute for the woven belt previously used.



GENERAL TESTING LABORATORY, TEXTILE DEPT., BUREAU OF STANDARDS

DYES TESTED AND DEFINED

The Bureau has been in very close contact with the dyestuff manufacturers of this country and has tested and defined their products with the view to supplying the military departments with authentic information as to the desirability of any particular dyestuff.

INSPECTION OF DUCK

For the sampling of inspected material the Ordnance Department adopted the following rules, and they have always been followed, as far as practicable:

When duck is ready for shipment, but before it is enclosed in burlap, the material must be sampled by an ordnance inspector, as follows:

1. (a) From one roll in every ten rolls of duck a sample 7 inches long by the full width shall be cut off the end of the roll. Each sample should then be carefully labeled with the E T number, name of contractor, roll number, kind of material, and the date the sample was taken.

(b) If a lot of duck is ready for inspection, and consists of less than ten rolls, two rolls shall be sampled as indicated above.

(c) All samples must thoroughly represent the material examined as to quality and appearance.

2. If goods are inspected twice a week or at greater intervals, then samples must be selected as described above and forwarded to Washington.

3. The samples thus obtained from the same or various kinds of material will be allowed to accumulate for three days, and then forwarded to the Inspection Section, Equipment Division, Washington, D. C.

Remarks: Whenever any appreciable amount of materials is rejected, the inspector must submit representative samples of same to the Department, state the reasons for such rejection and the approximate quantity involved. This also has reference to goods upon which the inspector is undecided as to acceptability.

ORDNANCE DEPARTMENT SPECIFICATIONS FOR COTTON DUCK

1. Material, Weave and Construction. To be of cotton, of a grade not inferior to middling, thoroughly cleaned, the yarns to be evenly spun, doubled and twisted to make a thread, the number of the ply to depend upon the specifications detailed. The fabric to be evenly woven, without sizing of any kind, to be commercially free from streaks, lumps, knots and imperfections of manufacture.

2. Tensile Strength. A. To have the minimum strength listed in Ordnance Department Construction Table for Duck. The strength of the material shall be the average result of three tests in the warp and three tests in the filling direction. Test specimens shall be prepared by cutting samples 8 in. long by 1¼ in. wide and then raveling an equal number of threads from each 8 in. side until a standard width of 1 in. is obtained.

B. The length of test specimen between the jaws or clamps of the testing machine shall be three inches, and the pulling jaw or clamp shall travel at a uniform rate of twenty inches per minute. The average result of tests shall be recorded separately for warp and filling.

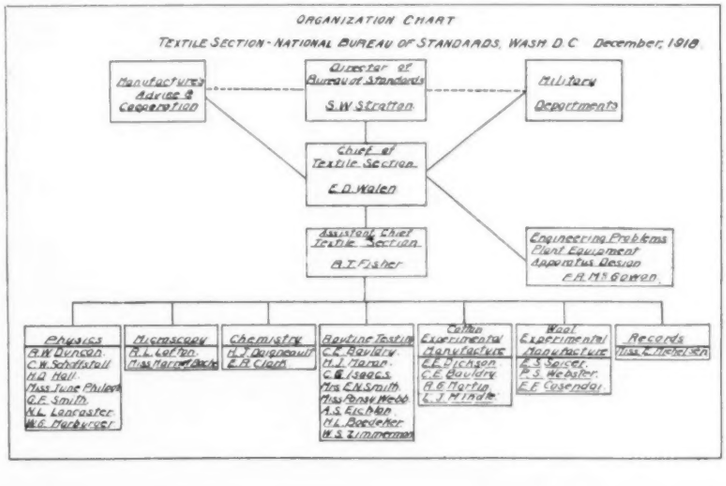
The detailed specifications of the duck shall be as given in the table below, and all tests when so required shall be made upon material having normal moisture content obtained by exposure for at least four hours to an atmosphere containing 65 per cent. relative humidity at 70 degrees Fahrenheit.

ORDNANCE DEPARTMENT CONSTRUCTION TABLE FOR DUCK

Duck	• Weight oz. per sq. yd.	Threads per in. W	F	Ply W	F	Yarn No. Warp	Strength (lbs.) Warp	Fill'g
1	29.46	26	16	6	7	7	290	310
2	27.82	28	18	5	6	7	260	280
4	24.54	29	24	4	5	7	225	245
9	16.36	44	30	3	4	13	150	160
10	14.73	43	29	3	4	13	140	150

• A tolerance of 1½ per cent. below the standard weight will be allowed.

3. Color Tests. The colored duck to be olive drab, dyed in the fibre, in the yarn, or in the piece, of the shade of sample on file in Ordnance Department, Washington. The material must not change color after having been subjected to the tests prescribed, to a degree which, in the judgment of the contracting officer, is not consistent with the use of the best sulphur dyes obtainable. The



fastness-of-color tests will be made as follows:

A. Dimension of Test Pieces. The test samples shall be two inches square.

B. Soap Tests. 1. Boil sample for ten minutes in a one per cent. solution of laundry soap (Ordnance Dept. issue) and thoroughly wash in clear water and dry.

2. Boil same sample again for ten minutes in a new one per cent. solution, and wash thoroughly in clear water and dry.

C. Acid Test. Soak sample for five hours in a fourteen per cent. (4° Tw) solution of commercial acetic acid, wash thoroughly in clear water and dry.

D. Light Test. The fastness-to-light tests will be applied in accordance with the best known procedure and material delivered must not change color to any greater extent than the change in contract sample under same conditions.

4. Samples. Two-yard sample of each weight of duck upon which bid is submitted must be furnished. Test pieces on which award will depend will be taken from this sample. If award is made, the remaining portion of sample will be carefully preserved against moisture and light action for comparison tests with deliveries made from time to time under contract.

SPECIFICATIONS FOR O. D. COTTON WEBBING

1. Material, Weave and Construction. To be of cotton of a grade not inferior to Strict Low Middling, thoroughly cleaned, the yarns to be evenly spun, doubled and twisted to make a thread, the number of the ply to depend upon the specifications detailed. The fabric to be evenly woven, without sizing of any kind, to be commercially free from streaks, lumps, knots and imperfections of manufacture, construction to conform to Ordnance Department Construction Table for Olive Drab Webbing.

2. Tensile Strength. To sustain minimum tensile strength tests listed on

(*Continued on page* 253)

Human Problems in Industry

(*Continued from page* 120)

principles long established and well-known, but applied with better logic because of a greater understanding of the necessities of the application and therefore with more justice in the future development.

KNOWLEDGE OF INDUSTRIAL HISTORY NECESSARY

The solution of the labor problem will not be based upon any new discoveries in the possibilities of human organization, it must come out of a better knowledge of industrial history, out of a better understanding of human necessities and out of an analysis which results in the throwing away of the old prejudices and traditions in order to attack the problem with an open mind and a desire to get at the truth of the matter.

Because of these facts, it is necessary to survey, briefly, the history of industrial organization and particularly the circumstances growing out of the development of the labor organizations and their increasing power. The labor organization grew out of the industrial revolution which accompanied the use of steam power for industry and the consequent change in the whole possibility of machinery in production. Up to that time there had been a fairly stable condition in productive work, with the exception of the riots of apprentices against the practical slavery under which they were obliged to work out their apprenticeships. In those old handicraft shops which comprised the industrial equipment of the ages before the introduction of steam, the number of workers was so small and the conditions of the work so individual that there was no necessity for the co-operation of workers in organized effort to change conditions. The industrial establishments in this era rarely housed more than ten workers and few reached as high as fifty. The distance between employer and employe was very small both socially and economically, the individual worker secured his industrial distinction and his social standing because of the quality of his work, and production was so slow a matter that goods could not be made any faster than they were demanded for consumption. This meant that there was a basis of confidence and understanding between employer and employe which made it possible to adjust all those questions of wages, hours and conditions of work in a friendly way as between man and man—each with full knowledge of the necessities and obligations of the other.

MACHINERY DESTROYS INDIVIDUALISM

The introduction of machinery with the use of the steam engine, destroyed the difference between craftsmen. In the textile industry the writer had the opportunity, in a village some seventy years behind the times, of witnessing the belated transfer of the craftsman to the mill. The last of the hand weavers were still weaving on their hand looms in their little cottages the cloth which had made them famous for their quality as craftsmen. They had survived the general shift to the mill because of the price which their superior handicraft continued to bring. They were masters of their work. They made their own designs, their own cards and wove their own cloth. They were artists, constructors, and creators finding a satisfaction in the incentive of creation and securing the reward for their skill and accuracy in the price of their wares. They worked long hours from sunup to sundown, but they were not tied to the machines and when they were tired they could recuperate in their own garden. As these weavers one by one succumbed to the competition of the mill and went off to work there for the rest of their days, they were absorbed in the general ruck of machine operators, their skill no longer availed them to secure higher prices; the work was so nearly the same on the looms that one operator was paid as much as the other. They could not settle their grievences man to man because they were governed by a subordinate official, himself bound to the rules of the mill and depending for his wage upon the care with which he obeyed them.

Grievances, which are always present, were no longer ironed out by understanding and frequent contact, they seethed until they became intense, explosive and culminated in the Chartist riots and the Sheffield and Manchester outrages of the early part of the nineteenth century.

There were no factory laws then, there were no regulations compelling the employer to limit the hours, there were no conditions as to sanitation and health—only as the worker organized and forced attention upon them did they receive any recognition either industrially or politically. The records of the industrial efforts from these times to the early sixties and even later is one which could hardly prove agreeable to the manufacturer of today. It is a record of high wages and good working condilow wages, frequently not enough to provide a minimum of sustenance, of all kinds of penalties which kept the worker in many establishments in debt to the employer and in practical slavery, of shocking surroundings, in many cases positively dangerous to health and of an utter disregard, by the employer, of the ordinary economic necessities of the case. There is no record in all this period of any body of industry voluntarily improving the status. Only when the increasing organization of the worker and an aroused public opinion expressed itself in governmental regulations were the conditions bettered. It is true that even at this time some few individual employers had seen the necessity or observed the moral obligation for decent treatment of the worker, but these cases simply accentuated the general indifference.

It was under these conditions that the labor union was born and received its strong impulse toward collective action. It was this period which provided labor with its traditions and its suspicions.

Nor were these suspicions entirely removed even by the more enlightened practice of the later period of the nineteenth century. The exploitation continued to some degree. Wages were lowered whenever the supply of labor was plentiful, without regard to the effect upon the physical condition of the worker. Piece-work systems put into effect were rearranged in many cases so that the worker could not earn much, no matter how hard he worked.

EMPLOYERS ENLIGHTENED VIEWPOINT

During the last twenty years the conditions have materially improved, a more enlightened spirit has come into the dealings of industry. Employers are looking upon the matter in a saner light. They have found out that well nourished workers are more valuable economically, they have found out that long hours do not always mean increased output and they have discovered that a certain amount of effort to offset the human depreciation is of money advantage. Yet it would be a bold man who would give all the credit for this to the employers and their more careful study of the matter. During this same period the power of labor organization has grown by leaps and bounds and its influence upon public opinion has grown with its own growth. The political influence of labor has been exerted successfully to a very much greater degree and the sympathy of the general body of the people toward labor has developed to a considerable extent.

These things have been not without effect upon the employer and the progress has been due to this cause no less than to the awakened conscience of the employer.

The past history of the century of industrial organization since the introduction of steam power shows clearly a continual increase in the power and influence of labor, the continual interference of the labor organization in the industrial operations, the constant retreat of the employers and their as constant defeat, the continual warfare between labor and capital and the ruinous character of this warfare in its effect upon industrial efficiency. In the United States the situation today is pretty much as indicated in the following outline.

The actual strength of labor organization has increased 50 per cent. since the beginning of the great war and its political strength has increased faster than its numerical count. The necessities of war have taught labor its inherent strength and have but whetted its appetite for further control.

Neither labor organization nor employers' group organization have indicated that they were concerned with co-operative solutions or a real measure of justice, but they are both frankly concerned with control, the one in the attempt to gain it, the other in the attempt to retain it.

So far neither side has shown any advance toward the solution of the difficulty, strikes occur with great frequency, labor is just as discontented, efficiency is not notably higher and the tendency to movement from place to place is about as great.

If the warfare between industry and labor is to continue, the employer must look for a constant loss in his control and a constantly greater political interference with his operations. This is indicated by the past history which shows the employer in a continual retreat and the public demanding the stoppage of the warfare, even though it mean the interference with the employers' affairs.

What then is to be done? Nothing can be done unless the employer is willing to throw away his prejudices and study the subject afresh with a real attempt to understand the ambitions and aspirations which govern the worker. There are some outstanding considerations which enter into this.

VALUE OF INCENTIVE

This war has drawn public attention to the value of incentive as an economic force. It has been recognized that wages, hours, nor pleasant surroundings are sufficient in themselves to induce the worker to stick to his work. In fact, in many lines the increase in wages has only sufficed to cut down the number of days consecutively worked. This was but natural, seventy-five per cent. of industrial work is monotonous, repetitive and cramped, the only value of money is to enable the worker to escape from such work and as soon as he has enough for his wants he has been accustomed to effect his escape.

The worker shows no responsibility for working. He has no responsibility to his employer—his only visible responsibility is to his occupational organization.

Incentive to work and continue working must arise out of something deeper than wages and pleasant conditions of work.

The war has shown that a real incentive can be created of far greater value than these, an ideal incentive, an individual responsibility and an individual share in the affairs.

In this the wage earner is not peculiar. I know of no man who has made sufficient income and saving who does not avail himself of that fact to become the master of his own time and spend it in many pleasant ways besides his business.

Our stories of success, with which our literature abounds and which are part of our youthful education, always picture the success as a man who has made enough money to quit working and enjoy himself.

The supervisor stays at work when he would like to be elsewhere, because he is responsible for the continuance of certain operations and his responsibility is the primary incentive, not the money.

We must recognize the futility of attempting to keep people at work by

high wages and good working conditions. We must organize to supply an incentive.

THE FACTOR OF DISCIPLINE

In the warfare between the labor organization and the employer discipline has become a joke in many lines of work. The traditional habit of mind—bitterness, suspicion and rancor on both sides has prevented any understanding and co-operation. The labor organization resents any discipline save its own and constantly fights any other. A railroad in England discharged a man for alleged drunkenness; before the matter was settled all the railroad employes in England were scheduled for strike, the business of the whole country affected and the Government obliged to step in.

On the other hand, the Government controls the telegraph and telephone lines to-day because the Western Union discharged some men accused of joining a labor organization. Discipline is impossible under such conditions.

In Great Britain shop discipline is almost entirely in the hands of the labor union. Are we headed that way?

There is no police power in industry capable of enforcing the arbitrary demands of employers without the consent of the worker.

IMPORTANCE OF PRODUCTION

We are beginning to recognize dimly, the part which incentive, content and agreement play in the productive capacity in industry. War has taught us much along this line. In a western factory a machine was scheduled for 11 pieces per hour. It was thought it could make 15. Women were employed and agents of the Government undertook to show them the importance of the operation for war purposes. The result was a production of 50.

Over 400 per cent. increase as a result of incentive.

Records of 25, 50 and 75 per cent. increases in production were recorded many times as the result of this education in incentive.

Production is affected seriously by mental and physical fatigues and this arises more readily when the deeper causes of disaffection are already at work.

CONFIDENCE A NECESSITY

The words of John D. Rockefeller, Jr., placed at the head of this article, are true to the last degree. No one can read the records of labor history, nor talk with labor leaders and manufacturers without noting the deep distrust and suspicion with which each side views the other. There is no confidence. The traditions and precedents are all of suspicion and warfare on both sides. The wage system is frankly a matter of bargain, each side getting the advantage when and how it can. The powerful labor organization gets good treatment—unorganized labor must accept what comes. When labor is plentiful, the manufacturer takes the advantage, when it is scarce labor proceeds to get the advantage back. Through this history, however, labor has gained ground steadily and the employer has lost it, without gaining any confidence.

GREATER ORGANIZATION

The industrial unit is an organization gathered together for common purposes with common interests, in the main. It should be welded with a common spirit and confidence and trust for proper working out of these common objects.

At present it is divided—the allegiance of labor is to his occupational organization, the allegiance of employer to his employers' association.

A house divided against itself must fall and an industry divided against itself must fail inevitably and be replaced by something more valuable.

What, then, is the solution?

The action of individual manufacturers suggests something. At present the number of organizations which have tried the new methods are few, but they are strong and leaders in their fields. They have recognized that there are two functions to an industrial organization—executive and legislative.

The executive require large powers lodged in the governors and acquiescence to these powers by the general body.

The legislative require full discussion and agreement.

These individual organizations have not disturbed the executive or operating organization, but by adding to it a legislative and judicial organization to take care of all those vexed questions which are apparently incapable of settlement, they have increased the discipline and value of the executive organization.

For the most part, the new developments in organization are laid out along political lines, calling for the election of representatives of the workers according to a well ordered system; these representatives forming into committees for the consideration of different legislative questions. Further forming joint committees with the executives of the organization for action on those matters. Some of them have records of success for a number of years. Some have only started. Their number increases day by day.

These which have been going for years record a continual decrease in grievances, a continual improvement in co-operation and a remarkable fairness in demand and decision.

These methods offer more hope of solution than any previous attempts. They are logical, sound, and really attempt to achieve a common organization for mutual interest without decreasing the operating effectiveness. In fact, some of the cases of longest standing claim a greatly increased operating efficiency.

The problem demands attention as never before, the individual will not be denied expression always, the man will not be willing to accept instead of sharing, always.

Incentive grows with responsibility. Human nature has been struggling for many thousands of years with the attempt to devise organizations which will keep the efficiency of the group and give responsibility to the individual. Responsibility will be secured by the individual worker. If it cannot be secured by other means, it will be seized.

It should be shared and these organization attempts offer a share in the common responsibilities to the worker, without destroying the effective machinery of productive operations.

Industrial Relations After the War

(*Continued from page* 121)

measure of freedom in their relations, it is imperative that they work out a broad, constructive plan for solving the problems involved in a way which completely protects the public's interests. Such protection is secured only by methods which have due regard to the well being of every class and which help to secure to every person the fullest measure of comfortable livelihood.

Where the adjustment of relations between employer and employe is by the usual method of free contract the decision is very apt to favor the side possessing the greater economic power. It is accordingly bound to make for dissatisfaction, especially among a group which is economically weak. It thus tempts labor to resort to such practices as restriction of output, strikes, closed shops, etc., in order to consolidate or increase its strength. Worse than even this waste is the fundamental hostility towards the entire wage system which is created in the minds of the groups whose economic weakness prevents their maintaining themselves satisfactorily by this method of free bargaining. The radical socialists and the I. W. W. are expressions of this hostility. This indicates the urgent need of a better system.

There is, of course, a large section of wage earners who are satisfied with the system of free and unrestricted contract. Strongly organized for collective bargaining or protected by some natural advantage, they are able to bargain on at least equal terms. They regard the strike as merely a resource in the bargain. During the war, especially, the disproportionate demand for labor enabled this class to gain great advantages; their discontent or restlessness is due merely to the idea that they are not realizing the full advantage of their strategic position. Such unrest may be allayed by improvements in working conditions, continuity of employment, better housing, elimination of profiteering by employers, better employment management, adjustment of minor personal grievances, more rational and uniform scale of wages. None of these requires any general change in the system of free contract.

THE PRINCIPLE OF ADJUSTMENT BOARDS

The plan of the Government through its war labor administration contemplated the adjustment of industrial relations, not by conflict, but by agencies established for the purpose in which the workers' interest had equal influence with that of the employer.

The principle of self-government by industries themselves, as well as of equal representation of all interests involved, should prevail in this democratic country. The process of organizing adjustment boards for the standardization of wages, hours, and conditions of employment, for the interpretation and application of such standards, and for their enforcement, had been going forward. Many approve this principle and hope the various industries will hasten the organization of industry-wide adjustment boards to meet the difficult problems of reconstruction. Wherever employer and employes are able by joint action to create an effective agency for the regulation of their industry on the basis of right principles, the necessity of federal or state control or interference will be minimized, and the risk of the paralysis caused by industrial warfare will be escaped.

There should be established within each plant committees of employes, truly representative of their interests, with whom the management may confer on all matters pertaining to employment conditions; joint committees composed of management and workers might be formed. While there is no recommendation of any detailed plan for the work and responsibility of such committees, it should be noted that such joint committees have been for some time in successful operation in many American establishments.

The tendency to extend the application of sound principles of profit sharing should be encouraged. The growing recognition also that the workers may be entrusted with an influence and responsibility in the management in conditions which directly and intimately affect conditions under which they work, is believed to be not only just and good business, but a certain insurance against the cumulative effect of small grievances in creating ill-will toward the management. Such voice in the management in this field should be extended as the workers show themselves competent to exercise it wisely and without abuse.

COLLECTIVE REGULATION OF STANDARDS

Industrial managers know that employment conditions are frequently unsatisfactory, but realize that the pressure of competitive conditions may make it impossible for the single employer or individual enterprise to improve upon them. The plan of organizing industry adjustment boards provides a remedy for this difficulty by assisting each industry or trade to establish standards for itself, protected against the demoralization of these standards by competition. It is only by collective regulation of standards by management through adequate agencies that certain conditions of industrial relations, admittedly unsatisfactory from every standpoint, can be corrected and certain conflicts of interest, hitherto thought irreconcilable, can be composed by the application of the rule of reason.

The policy of determining industrial relations (wages, hours and conditions of employment) without measuring the economic strength of the worker against management, but by a process in which reason, public policy, human needs shall predominate over might, has one great advantage—it disposes of at least three-fourths of the causes of friction and strife between the employer and his employes. The essential conflict of interests between the wage payer and the wage receiver is not eliminated, of course, but is transferred to a forum where the issues are larger and clearer and less confused by personal and petty considerations. Ultimately the consumer pays the wage and the conflict of interest will then shift from the employer to the public as one of the parties. The employer will be relieved of the temptation to make an extra profit or prevent losses by reducing wages and need not complain since all his competitors will be held to the same standard. Private enterprise and initiative exercised constructively will be accelerated rather than discouraged by thus protecting the more reasonable methods of adjustment.

There are even now establishments and industries where certain fixed methods of adjustments are already imposed upon the employer, not by a board in which his interests are represented, but arbitrarily by a labor union. The strongest consideration influential in the establishment of these methods is the primary necessity of the union to maintain its own existence and dominant power. The future issue is likely to lie in a choice, not between a system of free contract and the system of joint boards, but between that based on principle and the system based on the arbitrary powers of organized labor.

Among the principles which should govern and control the relations between employer and employe, are the following:

1. Industrial enterprise is the source of livelihood of the worker as well as the employer. Business should therefore be conducted with full considera-

"We Are Using from ¼ to ½ Less of This Soap Stock".....

"We add one pound of OAKITE to every eight pounds of soap—and use from ¼ to ½ less soap stock than formerly.

"That makes a big saving on a year's soap bill!

"But better than that is the work that this soap stock is doing.

"Our goods are cleaner, softer and fuller than they ever were before—and they take the dye beautifully.

"That's why our goods are so far ahead of the other mills who have not discovered Oakite.

"The Oakite man that calls on us certainly knows his business."

This Advertisement is one of a series based on actual occurrences A. W.

OAKITE

MANUFACTURED BY
OAKLEY CHEMICAL CO.
42 THAMES STREET NEW YORK

tion of its functions of creating opportunities for the people attached to and dependent upon it.

2. Both management and men should co-operate to increase the regularity and continuity of employment. Irregularity of employment is a large cause of the migration of labor, is the greatest of industrial wastes and one of the main causes of general social and economic demoralization. While much of the irregularity of employment may be due to seasonal and other causes beyond the control of industry, nevertheless the collective and individual efforts of management by industries and communities can be effective in greatly reducing it.

REGULARIZING OF EMPLOYMENT

Now, what does that mean specifically? Every one of us in industry knows the remarkable economies, nationwide, that the War Industries Board, through its conservation department, has brought about, by simply getting employers together and reducing sizes, for instance, of automobile tires from something like 70 to 13, and one automobile tire manufacturer told me it would eventually be reduced to nine. Every industry was tremendously gratified that that sort of thing could be brought around. That has gone forward in shoes, in clothing, in many things, in which style featured and had a part, eliminating the abuses of the trade which have been developed through competition.

Now then, along such lines, if the idea of co-operation among the industries to regularize employment could be carried out, under the direction perhaps, or through the clearing house of some government agency, much could be accomplished.

For instance, in one industry in which I am interested, the printing and binding of books, 69 per cent. of the business of that industry is done during the four summer months. That means there is a fluctuation in employment there of nearly 40 per cent. Now why is that so? Just for one reason, and that is because school boards, county, state and city, generally make their adoptions of school books in June for the next September. If they made them in December for next September, that entire industry could be regularized. And why do they not do it? Because there is no organization strong enough to create public opinion and disseminate information on that little thing which would help that particular industry, and, in principle, regularize it 100 per cent. That is only one small industry. If society, industrial communities, recognized that the regularization of industry is one of their responsibilities, and it can be directed somehow, what a tremendous amount of labor unrest, unemployment and migration could be avoided.

THE OBLIGATIONS OF COLLECTIVE BARGAINING

3. The right of the workers (as well as any other group in a democratic country) to organize voluntarily for collective action not inimical to the general welfare cannot be denied or resisted without creating a sense of industrial injustice. Power developed by organization, however, cannot be permitted to work injury to the national welfare nor to demoralize the industrial process. It is the duty as well as the interest of the Government to require that both management and men function efficiently and mould their motives to fit the accepted ideas of public policy.

4. Recognition of the right to organize without opposition from the employer must be joined with the obligation of faithful observance of collective agreements and of co-operation with the management to promote the efficiency of the establishment through discipline and proper rules. If management is to be responsive to the interests of the workers, a larger sense of responsibility must be developed by the employes.

5. Wherever there are collective agreements or standards regulating industrial relations, impartial agencies must be developed to interpret the agreement and apply it to particular cases. Misunderstanding over awards and partisan administration of them tend to discredit arbitration. Means should be provided by which every dispute may be promptly and authoritatively settled.

6. This is quoted from President Wilson's proclamation of April 5:

"The right of all workers, including common laborers, to a living wage is hereby declared. In fixing wages, minimum rates of pay shall be established which will insure the subsistence of the worker and his family in health and reasonable comfort. The provision that wages should not be below that necessary to insure the worker and his family in health and reasonable comfort should mean that an industry that could not pay such wages should not be tolerated."

STANDARDIZED WAGES AND SERVICE

7. The relation between good earnings and national prosperity is demonstrated by industrial history and theory; adequate earning power of the working population means abundant purchasing power and keeps business going. When the volume of business is declining, wages should be the last item to be cut down, on the ground that such reductions accelerate the tendency toward business decline. This situation is generally precipitated by the least intelligent or more helpless industrial managers who under competitive pressure take this course because it appears to be the short cut to the preservation of profits and the prevention of losses. The joint maintenance of standards as herein proposed will retard, mitigate and shorten industrial depressions.

8. Wherever there is a standardized wage there would also be a specified measure of efficient labor performance. Every worker has a moral right to compensation in direct proportion to his individual accomplishments or service.

TENDENCY TOWARD EIGHT-HOUR DAY

9. The tendency toward the reduction of working hours in industry to eight hours in any one working day (or 48 hours per week) and one day's rest in seven, is clearly recognized. It must be acknowledged, however, that it fails to discriminate between widely differing tasks and conditions of work. By such evidence as is yet available it cannot be proved to be uneconomic, while its value in promoting health, education and better citizenship is widely admitted. As recently recognized by Federal legislation, it cannot be strictly applied to conditions in certain industries, pre-eminently in railroading, where longer hours must be provided for to meet conditions which arise with great frequency and in which the only statute limitation now existing is one of 16 hours. It is equally obvious that in certain hazardous and oppressive tasks to require men or women to continue work for 8 hours in any one day would be to impair health. The 8-hour day in industry has naturally resulted from the growing practice of keeping plants at full production continuously through the 24 hours where a division into 12 hours each would admittedly be to over-tax strength and endurance. Demands for short hours, however, with excessive overtime pay as a device to increase compensation indirectly, are not honest and tend to defeat legitimate efforts for the proper working day by encouraging men and women to work beyond their strength and to sacrifice to earnings time which should be given to bodily and mental recuperation and to the duties they owe to family and State.

THE LABOR MANAGER'S FUNCTIONS

10. Each industry should recognize that the proper administration of its relations with its employes is of sufficient importance to be placed in charge of a responsible director or labor manager, who should be equipped with adequate influence and authority to represent or direct the management in all matters touching the interests of employes. No industrial administration is complete until at some point it is sensitive or responsive to the grievances and aspirations of the employes. The knowledge and experience of a labor manager should be utilized in the councils of management. His influence should be exercised in the general direction of the business, especially in matters of the organization and functioning of the various departments wherever the interests of the employes are touched. The efficiency of production of one department is often affected fundamentally by actions taken in other departments of the business. These should be correlated through the labor manager. He should interpret the business policy of the establishment to the working force and will frequently forestall opposition and ill feeling by timely explanations of the reasons for such policies and plans. Probably in this particular function of management the textile industry is lagging more than in any other.

I hope to see a general movement started soon to introduce wise employment management and not entrust so important a function to overseers; if this be done, cotton manufacturers will be better able to bring about the other improvements so much needed in this great industry.

LOCAL COMMITTEES ON INDUSTRIAL RELATIONS

The appointment in each industrial community, under the auspices of the Chamber of Commerce or similar organization, of a committee on Industrial Relations will be an important advance in improving the relationship between local employers and employes, and influencing better methods of managing and adjusting these relations. The committee should assume the leadership in the community in developing public opinion on this subject through public discussion and the dissemination of information. Right thinking is the very basis of organized life in a democratic country. It is an achievement which is the reward of intense collective effort and the intelligent use of the resources of organization, and is effective only if it can be brought to bear upon decisions and plans for action. These committees may become the medium of expression for the most enlightened ideas and the agency through which they can be applied in industry. In an unusual degree, their effectiveness will depend upon their personnel. While a variety of opinion is desirable, men who represent mere prejudices of class interests may seriously obstruct if not defeat the purpose of the committee. The men to be sought for should have broad understanding of our economic system gained through practical experience which has broadened rather than narrowed them. Above all, the personnel of the committee should give it unquestioned leadership in guiding the local public opinion in these controversial and dangerous questions.

Wages in War and Peace

(*Continued from page 121*)

ation. It is easy to point out that part of the trouble lay in the weakness of the Government in setting standards of wages which were based on nothing but expediency and the desire to prevent labor troubles. The other side of the question is that labor troubles would have prevented production, or reduced it and extended the period of the war.

The employer of labor must not seek an immediate revision of wages on any artificial or arbitrary basis relating to pre-war conditions. He must be prepared to take all facts and factors into consideration, and to adopt a basis which is fair, just and equitable, and to maintain that position inflexibly. That position must take into consideration the prosperity of the country, which is best served by production at fair cost and by the payment of wages which will make for contentment among the normal workers. He does not need to aspire to satisfy labor leaders, or the greedy ones of labor, but to satisfy his conscience, the national conscience and the worker who recognizes that a fair day's pay is compensation for a fair day's work.

PRESENT WAGES AND EIGHT-HOUR DAY IMPOSSIBLE

We cannot maintain the present rates of wages, nor can this country continue to prosper on a basis of eight hours' work a day. It may not be desirable to abolish the eight-hour day where it is proving satisfactory, but it is not possible, either by legislative fiat or union dictation to impose a universal eight-hour day. There are not enough workers in the United States to produce the needed goods on a basis of actually eight hours a day. The basic eight-hour day is nothing but a fiction covering increased wages and, therefore, the proposition resolves itself into the question of reasonable and fair wages. Reasonable wages, which are inordinately increased by time and one-half, or double time for necessary overtime, are a factor in increasing costs, decreasing competitive powers and increasing the cost of living. Therefore, the question of hours enters into the problem very seriously because the workers do not want an actual eight-hour day, they want the increased pay which the basic eight-hour day makes possible and, in fact, imperative.

AUTOCRATIC ATTITUDE OF UNION LABOR

It is very unfortunate that the President of the American Federation of Labor should have at this time made an announcement that union labor proposes to keep all that is secured during the war and that wages will not be reduced, nor will there be any adjustment of hours. That statement is only interesting because it shows a mental attitude towards the prosperity of the country which is similar to the attitude adopted when the country was at war. It reflects greed, a desire for power, a willingness to destroy when its demands are not granted. Further than this, it is of

Procter & Gamble Textile Soaps

have proven 100% efficient in all branches of the textile trade. Manufacturers who formerly refused even to try anything but olive oil soaps are now blessing the dearth of olive oil that compelled them to turn to Procter & Gamble Standard Soaps. These manufacturers will never again be dependent upon a foreign source of supply. Even after the old order is restored, they will continue to use Procter & Gamble Soaps, because

Their high quality is always uniform

A process formula never has to be varied after it once works properly with a Procter & Gamble Soap. The soap is always the same—pure and neutral as soap can be made.

Their absolute guaranteed purity makes them safe to use for any process

Procter & Gamble Textile Soaps contain no free alkali; no uncombined fatty acids; no rosin; no filler of any kind. When free caustic or soda ash is desirable, it is cheaper to buy it separately and add just what is needed. Then you know what you are working with, and you are not paying a soap price for cheap alkali.

Ivory Soap Chips

99 44/100% pure

are simply the famous, mild, white Ivory Soap in commercial chip form. Made from pure, wholesome vegetable oils by the unsurpassed Ivory process. Sweet, clean odor. Cannot turn rancid. So thoroughly soluble that scouring of wool and degumming of silk is performed quickly and easily, without the slightest injury to delicate fibres. So free from uncombined fatty acids that this soap rinses out easily and thoroughly, leaving the fibres soft, lustrous and pliable, and free from any substance that might interfere with the dyeing.

Ivory Chips have a low melting point that makes them desirable for the most delicate work.

Sold in 150-pound barrels.

Concord Bar Soap

in 4-pound bars

Made by the same process and from the same materials as Ivory. Especially convenient in many processes, as the accurate weight, 4-pound bars eliminate weighing or measuring. This white soap is as pure as the Ivory Chips. Can safely be used in bleaching; in scouring, cleaning and fulling of wool; in degumming, dyeing and finishing of silk; in the cleaning, dyeing and printing of cottons and linens.

Both Concord and Ivory prove their worth in every step of the textile manufacturing business. No manufacturer who has once used either of these Procter & Gamble products will return to old methods.

Sold in 200-pound cases (50 bars)

Amber Soap Flakes

88% real soap

These thin, dry flakes of **Real Soap** are made from only the highest grade of tallow, selected for its solubility, and freedom from odor and unsaponifiable materials. Amber Flakes are as pure and neutral as soap can be made. For any textile manufacturing process they are equal or superior to the purest olive oil soap. They are economical, because you pay for nothing but pure, non-alkaline soap. Every pound goes farther than the same weight in average bulk soaps.

Every barrel is uniform for quality, and every barrel contains the positive guarantee that Amber Flakes are **88% or more Real Soap; 12% or less moisture; Pure and Neutral.**

Sold in 175-pound barrels.

Of course we have the figures and chemical analyses to prove these statements. But you can have your own chemist test any or all of our textile soaps, in your own laboratory. We will gladly furnish the materials, free. Or drop us a line, to have a representative call.

The Procter & Gamble Distributing Company

Cincinnati, Ohio

Branches:

BOSTON—NEW YORK—PHILADELPHIA—CHICAGO—MINNEAPOLIS—KANSAS CITY—HAMILTON, ONTARIO

Brokers:

The Cronkhite Company
185 Devonshire St., Boston

Alden Speare's Sons Company
140 6th St., Cambridge, Mass.

PROCTER & GAMBLE EST 1837 STANDARD PRODUCTS

no consequence because the word of any man will have little weight in an economic re-adjustment. These things are automatic. They can be accomplished without trouble by co-operation, but they will be accomplished, even if chaotic conditions are necessary for their fulfillment. Neither the manufacturer nor the worker will have much to say with regard to them. Economic laws are inexorable and the prosperity and the commerce and the industry of the country will be regulated by world conditions of trade, by competition and by our ability to adjust ourselves to the imperative facts of a world situation.

LABOR'S WAR SACRIFICES EXAGGERATED

It is worth while in passing, however, to note that the announcement of the President of the American Federation of Labor was coupled with the assertion that labor was entitled to all that it secured by reason of its sacrifices during the war. That is not an honest presentation of the situation, because the sacrifices of labor were entirely vicarious. They were not real or actual, but were, on the contrary, quite the reverse. Labor secured during the war extraordinary wages. Living conditions and conditions of work were made as easy as possible. Hours were regulated so as to grant all that was demanded. Overtime pay brought the weekly envelope up to enormous proportions. The men were exempted from military service because of their participation in essential industries. Even the labor leaders demanded exemption which was granted. In fact the war did not touch the average worker, and especially the union worker, except to increase his wages and make his participation in industry easier. Therefore, the talk of sacrifices is not merely foolish but ridiculous and implies ignorance on the part of the people of this country as to the actual situation. The only sacrifices of labor were in striking and in preventing production; sacrifices which were made for the purpose of imposing almost impossible wages on the Government and on the industry.

MUST FIND SOME BASIS FOR CO-OPERATION

This country must realize speedily that its great balance of trade because of war conditions will not last indefinitely; that our ability to sell goods abroad on a basis of high profit will continue only until England, Germany, France and Italy have readjusted their industrial and economic powers. It must be realized also that the countries of Europe, even those which are our allies now, will be our greatest competitors, and we must either sacrifice our markets or be prepared to meet the prices of our European competitors. We cannot hope to hold the foreign markets, or even our own markets, if such a spirit prevails as that enunciated by the leader of the American Federation of Labor. We must arrive at some basis of co-operation and that basis will be one which common sense and even selfishness on the part of labor will accept.

Lowell Textile in Supporting Trenches

(*Continued from page* 138)

nected building room was made in the hand loom department for a suitable mess.

The regular assembly hall of the school, located in Southwick Hall, was changed into a study room, and at times has served as the "Y," where periods of recreation might be enjoyed to the fullest. With these arrangements the school has accommodated one hundred and forty-three men, of whom one hundred and twenty-four were members of the S. A. T. C., and nineteen were members of the naval section assigned to the school, but under the direct charge of the commanding officer of the S. A. T. C. Besides these there were forty civilian students pursuing the regular school courses.

The accessibility of all parts of the plant, and the close proximity of the campus, fully enclosed, has made the school ideal for the execution of the committee's plans for the S. A. T. C. Not only has it lent itself readily to the plan from a physical standpoint, but from a scholastic standpoint as well. There were very slight modifications in the regular courses necessary to meet the war course requirements. Students in the upper classes could pursue their textile manufacturing courses about as usual and the courses given in the first year, which have been considered fundamental to later textile training, were almost identical in the courses approved by the special committee. Thus with the

BAYONET EXERCISE ON SCHOOL CAMPUS

return to a peace basis students who entered in October and will return next term, as well as those upper classmen who returned at the first of the year, will not be seriously handicapped by any temporary change in curriculum during the first term of this year.

SHORT, INTENSIVE COURSES

Such an occurrence as this indicates the breadth as well as the adaptability of the regular courses of instruction. It was the object in all courses during the short period from Oct. 15 to Dec. 11 to give such training, whether in textiles, chemistry, mechanics or engineering, as would be of greatest immediate value to those going into the service. It was recognized that a knowledge of textile fibers and their utilization in fabrics for warfare service was very likely to be quite as beneficial to some students as some other courses that went to make up the scholastic preparation of an officer. It was expected that about Jan. 1, had the war continued, the young men twenty years of age would be withdrawn from school to be sent to some officers' school for further intensified training or to some cantonment. Again about April 1, those who were nineteen years of age would be selected, and by June 1 those eighteen years old. The courses were therefore planned to conform to this purpose as nearly as possible, and it virtually meant an intensification of all courses.

REGULAR STAFF PROVED ADEQUATE

No special instructors were added to the regular teaching staff to meet the needs of the S. A. T. C. All requirements were met by the regular instructors, who in some cases carried new and additional cares. The supervision of the mess and the purchase of food supplies was given to Arthur A. Stewart, head instructor of the finishing department, and he was assisted by C. Leonard Glen, instructor in the same department.

Teaching soldiers of our army to sing the familiar American songs as well as those of other allied nations has been recognized as an essential part of military training in this country. For this reason training in chorus singing was a part of the S. A. T. C. program. This school was fortunate to have in its instructing staff one who by training and experience was well qualified to meet the requirement. Edgar H. Barker, head instructor of the wool yarns department, had only a few opportunities before demobilization to teach the students the songs well known to the soldiers and general public of to-day.

The organization of the "Y" and the providing of entertainment for the men during recreation periods was taken in charge by Louis A. Olney, head of the textile chemistry department. Lester H. Cushing, head of the language and history department, had charge of arrangements of supervised study during the study periods. Hardly any conditions arose that did not find some member of the instructing staff who by training or experience could meet and handle the situation.

Early in September Capt. Charles N. Cecil, U. S. A., Retired, reported to take charge of the military instruction. He represented the War Department at the school and organized the S. A. T. C. immediately upon the induction of the men into the service. To assist him in this work the War Department assigned to the school Second Lieut. Edgar W. Nichols, Second Lieut. James K. Davis, Second Lieut. Harold Dudgeon. Upon these officers devolved the care of the soldiers and they were empowered to treat all cases of discipline. Students when not in classes were always under their charge and subject to their orders precisely the same as if they were at camp or cantonment.

There were sufficient men to organize a battalion of two companies in addition to the naval section of nineteen. This made it possible to give instruction in closed and extended order formation of the company and battalion. Several "hikes" were taken into the country and sham battles were carried on. Guard duty was required of all, that instruction in this important branch might be given.

RETURN TO PEACE SCHEDULE

On account of the short time during which the S. A. T. C. has been in existence it has not been possible to form a clear measure of its success or failure. It was a war measure and not a plan to be operated in peace times. Some difficulties occurred which with time could undoubtedly have been cleared. All, including students and instructors, were ready to return to a peace schedule and take L. T. S. "out of the trenches."

The indications late in December at the time this article was written are that when the second term opens Jan. 2 a good percentage of those who entered for the S. A. T. C. as well as for a textile training will return to resume their studies. In addition, judging from recent correspondence, many former students who left to enter the service will return following their discharge previous to Jan. 2. A registration nearly equal to that of the pre-war period is looked for.

The Game of "Taking Orders"

An Interesting Process About Which Too Little Is Known

By *Robert J. Byron, Philadelphia*

"TAKING ORDERS" is seemingly the easiest thing to do in the textile manufacturing business, but as a matter of fact it is the most difficult, because the taking, or technically the accepting of an order means that the manufacturer must not only bind himself to manufacture and deliver the goods sold at the price agreed on, but also must be equipped first with a plant of sufficient capacity to manufacture as well as compete with other manufacturers, and second, be supplied with sufficient raw materials, purchased at a right price, in order to be able to manufacture and turn out the completed product at a profit.

Too many manufacturers in their zeal for business forget that taking orders sometimes means taking heavy losses. So also some sales agents and salesmen employed by manufacturers seem to think that quantity rather than quality orders are wanted, overlooking the fact that an order to be acceptable means an order from a reliable buyer, for a finished product, sold in the open market, not only without loss but at a substantial profit over all overhead expense. Manufacturers therefore should only employ experienced and trained sales agents or salesmen: in other words, representatives who know not only the market prices of raw materials, but also of the finished product, in order to be able intelligently to discuss and arrange sales with buyers.

TOO MUCH POWER DANGEROUS

Some manufacturers' representatives are authorized not only to solicit sales but also to accept orders. This is an unsafe way of conducting business, because it is impossible for sales representatives to know the credit standing of buyers, as does the trained credit man of the manufacturer, who devotes his whole time and attention to that subject. If sales representatives have such power to close sales, then their principals are very apt to have trouble, especially where they are not exclusive sales representatives. If they are exclusive sales representatives, they ought to know, and if not, they ought to be

Color and Co-Operation

WE OFFER YOU BOTH

OUR ORGANIZATION includes experts in the application of colors to leather and textiles. Therefore, the service which we are equipped to render, is a fundamental element vitally contributing to our success. We have the COLOR you need, can deliver it promptly at your factory, and will CO-OPERATE with you in obtaining the best results in your Dyehouse.

Our Copyrighted Terms

"JENYL"
We apply to our DIRECT COTTON Colors

"KATHETON"
We apply to our SULPHUR Colors

JENNINGS & COMPANY, Inc.

93 Broad Street, Boston

informed, as to their principal's output capacity. If they are not exclusive sales agents, then they ought not to be given the power to close sales, because they are apt to load up the manufacturer with more orders than can be manufactured in connection with other orders.

PROBLEMS OF CANCELLATIONS

The subject of taking orders naturally brings up the subject of cancellations. No order should be taken unless the manufacturer intends to fill it; and on the other hand, no order ought to be permitted to be cancelled by the buyer except for the best of reasons, such as inability to pay, death, or some other unforseen contingency, which renders it just as inadvisable for the buyer to take the goods as for the manufacturer to ship and deliver.

There has heretofore been much laxity in the textile trade as to cancellations. Orders have been taken right and left only to be cancelled in whole or in part by the manufacturer, to be sold to other buyers in an advancing market. On the other hand, orders have been given by buyers on an alvancing market, which they have been over-anxious to have delivered, only to be followed by quick cancellations when the financial tide turns and the market falls. Governmental cancellations have necessarily brought about many manufacturers' and dealers' cancellations. Sanity and reason, however, ought to govern in adjusting such cancellations. The Government has established reasonable regulations with regard to cancellations, and manufacturers and buyers ought to and no doubt will realize the change from war to peace conditions and adjust themselves accordingly.

ORDER BLANKS MUST BE SIGNED

With regard to taking orders, some manufacturers use plain order blanks, containing the name and address of the buyer, and space for the insertion of data with regard to goods desired. Others have similar blanks with certain protective clauses printed thereon as to delivery, etc. Others have these and additional provisions with regard to acceptance or non-acceptance at the home office, terms of credit, etc. These are most important provisions. Very few manufacturers, however, require buyers to sign their orders—same being usually filled out by the manufacturer's sales representatives, one copy being sent to the manufacturer and the other left with the buyer and sometimes another copy is made for the sales representative. An anomalous situation is created by an order taken in this way, because to constitute a contract there must be an offer and an acceptance, the minds of the parties meeting on the same subject. Where the order is written out by the manufacturer or sales representative and not signed by the buyer (only a copy given to the latter) the question of whether or not the order has been verbally accepted or rejected is necessarily left open to conjecture. This doubt is sometimes removed by confirmation sent by the manufacturer to the buyer and retained by him—who, it will be noted, has signed nothing in confirmation of his order; in fact has received nothing more than a manifold copy of the order blank filled up as above stated.

Because of the honesty of most buyers not much litigation has grown out of orders taken in this way, but where the market fluctuates and cancellations follow, the acceptance or rejection of orders become vitally important to the success of a concern; therefore, it is most important that orders should be taken in a regular, sensible way. It is accordingly recommended that orders be taken as follows: Let manufacturers or their sales representatives take orders as they have heretofore been doing, having the buyer place his initials on the order blank underneath the words "Correct, subject to seller's acceptance," thereby showing that the buyer as well as the manufacturer or sales representative has agreed on the goods and terms and nothing is left open except acceptance by the manufacturer. The manufacturer then is in position to accept or reject the order. He can accept same as given, or change the terms, which, of course, will necessitate the buyer accepting or rejecting such change. Orders taken in this way give the manufacturer substantial protection.

UNIFORM ORDER BLANKS

It is recommended that uniform order blanks be adopted and that the trade be educated to O. K. their orders as above stated. Friction and trouble will thereby be avoided and incidentally costly litigation.

It is true that most buyers are honest, just as it is equally true that most citizens are honest. Nevertheless in every large city thousands of policemen are employed to guard the homes and property of citizens as well as their persons from the criminal classes. So protective order blanks should be used to guard manufacturers from the "foxes" of the buying and jobbing trade who are always looking for grounds either to hold the manufacturers for broken contracts or to break contracts made by themselves.

Uniform order blanks are also very important because of certain statutory enactments requiring sales over stated amounts to be evidenced in writing. We all know that sales over these fixed amounts are frequently made without being in writing; nevertheless, if questioned, it would be necessary in order to sustain same to prove that there had been some ratification by payment or acceptance of the goods, etc., in order to show actual confirmation of such orders.

Some manufacturers may say that it would displease buyers to require them to sign order blanks. If this be so, then they could take chances, but if there be proper protective clauses printed on such blanks, and copy of same be received by the buyers and retained by them as evidence of their willingness to accept the goods, then such protective clauses will be most helpful to the manufacturer for the reasons above explained.

MANY SAFEGUARDS NECESSARY

Taking orders is an intensely interesting subject—one of which the making or breaking of a business depends. Too many safeguards cannot be thrown around the system of taking orders used by every manufacturer. Carelessness and "trust to luck" policy have been the main characteristics of past order taking systems. In the future manufacturers ought to be careful in accepting orders, especially in these war-peace times, not only for their own protection, but also for the safety of their trade from dishonest competition, also not to cut and slash prices, regardless of their ability to make delivery on a profit-making basis. Self-protection and trade protection demand rationalism, especially in after-peace times, when local as well as foreign competition will require the nicest balance on the part of manufacturers.

Textile War Work of Bureau of Standards

(*Continued from page 242*)

Ordnance Department Construction Table for Olive Drab Webbing. The tensile strength shall be determined by the average of three tests. Webbing 2½ in. or narrower shall be tested in the full width of the warp. Webbing wider than 2½ in. shall be cut in strips 1½ in. wide, then enough threads shall be raveled from each side to leave 1 in. of warp. The jaws of the testing machine shall be set three inches apart. The filling strength in 2 in. webbing or wider shall be tested from strips cut 1½ in. wide raveled to 1 in. of filling and the jaws of the testing machine shall be set 1 in. apart. These tests shall be made upon material having the normal moisture content obtained by exposure for at least four hours to an atmosphere containing 65 per cent relative humidity at 70 degrees F. The jaws of the testing machine should travel at a uniform rate of 12 in. per minute.

3. The Webbing is to be Olive Drab dyed in the fibre or in the yarn of the shade of sample on file in the Ordnance Department, Equipment Division, and to be able to stand the following tests:

A. Dimension of test pieces for color test. Webbing 2 inches or less in width shall have a length of 2 in. With all other webbing the test samples shall be 2 inches square.

B. Soap Test. Boil sample for 10 minutes in a 1 per cent solution of laundry soap (Ordnance Dept. issue) and thoroughly wash in clear water.

C. Boil same sample again in a new 1 per cent soap solution and wash thoroughly in clear water.

D. Acid Test. Soak sample for five (5) hours in a 14 per cent (4 degree tw) solution of commercial acetic acid. Wash thoroughly in clear water and dry.

E. The material must not change color, after having been subjected to the tests prescribed, to a degree which, in the judgment of the contracting officer, is not consistent with the use of the best dyes obtainable.

4. Samples. Ten yard sample of each weight upon which bid is submitted must be furnished. Test pieces on which award will depend will be taken from this sample. If award is made the remaining portion of sample will be carefully preserved against moisture and light action for comparison tests with deliveries made from time to time under contract.

CONSTRUCTION TABLE FOR COTTON WEBBING

Grade.	Width (in.)	Weight oz. per lin. yd.	Minimum Warp Ends	Picks per Warp Inch	Number Warp Yarns	Ply Filling	Strength (lbs.) Warp	Strength (lbs.) Filling
Light weight	⅝	.31	83	54	16/2	2	135	..
Light weight	½	.33	96	42	16/2	2	150	..
Light weight	1	.43	108	54	16/2	2	150	..
Light weight	1¼	.54	135	54	16/2	2	175	..
Light weight	1½	.64	160	54	16/2	2	225	..
Light weight	2	.86	211	54	16/2	2	275	..
Light weight	5¼	2.4	476	54	16/2	2	125	14
Heavy weight	⅝	1.00	59	32	10/5	5	400	..
Heavy weight	¾	1.00	73	34	10/5	5	550	..
Oval	⅝	1.5	105	32	10/5	5	600	..
Web	1	1.33	89	26	10/5	5	600	..
Halter web (jute gutting)	1⅛	1.8	112	24	12/3	3	550	..
Twill Web	2	1.20	180	24	16/3	3	650	..
Pocket Flap	2.7	2.01	152	15	8/3	10	225	25
Shoulder Strap Web	3	2.25	560	52	2-ply	2	1000	..
Halter Web	1⅝	2.5	....	26	10/5	5	900	..
Pocket Flap	3⅛	2.8	204	15	8/3	10	220	27
Pocket Flap	2	2.87	195	30	10/5	5	1200	..
Sword Tubing	2	2.9	128	21	10/5	6	200	30
Sword Tubing	5	3.13	44 per in.	17	10/5	4	225	13
Ribbed Web	2¼	3.75	239	30	9/5	5	1200	..
Ribbed Web	7	3.75	47 per in.	17	4-ply	4	250	12
Bayonet Scabbard	1 15/16 to 2¼	....	135	36	10/5	5	200	15
Bolo Scabbard	3 to 3¼	....	203	40	10/5	5	200	17

INSPECTION SYSTEMS

1. In July, 1917, the Inspection Division of the Ordnance Department inaugurated a system of comprehensive physical and chemical tests on all textile materials manufactured on contracts under the supervision of that Division. This system included the actual inspection by the inspector at the plant of the contractor and the testing of selected samples of materials involved at the Bureau of Standards in Washington. During the late summer of 1917, very few testing instruments had been installed at the mills of the various contractors who were furnishing cotton webbing, cotton duck, cotton and linen thread, felt, flannel and saddle blankets to the Government. In the fall, however, a good proportion of the mills had procured testing apparatus at their own expense and were able to provide the inspectors at their factories with tensile strength instruments, balances and other instruments needed in the analytical testing which was involved. The spirit which was shown by the contractors in meeting the Department over half-way in regard to furnishing laboratory equipment was excellent in every way and a goodly part of the success which the Department has met in maintaining a high standard of quality in the different textile fabrics is due to this spirit shown by the mills.

2. The inspectors stationed at plants throughout the country have been, during the past year, required to render daily reports of all material inspected and accepted with an analysis of material typical of the bulk accepted. This analysis included a weight per linear and per square yard, the tensile strength when an instrument for determining it was available, thread count, ply count, yarn number and the conventional color tests to determine the fastness of the olive drab shade on finished fabrics. With these reports were submitted samples cut off from pieces adjacent to those which had been tested in the mill. By subjecting these materials to equivalent tests at the Bureau of Standards, the accuracy of the methods and instruments used by the inspectors at the mills was ascertained and a factor of difference between the instruments used at the mill and those used at the Bureau of Standards readily established.

3. By keeping closely in touch with the product of the different mills on Government contracts, the department has been able to detect any slump in the quality of a given material and also to compare and contrast the several fabrics of one type which were being produced by different contractors.

4. When this system of testing had been practised for several months, it was noticed that a marked improvement in the quality of the materials below standard had been effected merely by apprising the contractor from time to time of the results of analysis of his fabric with suggestions for improvement.

NOW MADE IN AMERICA

This is the True Meaning of

ALMARIN

FAST COLOURS "OF DAYS GONE BY"

Brilliant Fuchsine Crystals — **Brilliant Malachite Crystals**
Crystal Violet 6B Extra
Guaranteed 100% soluble. — *No inorganic matter.*
Rhodamene B Extra — **Rhodamene 5GS**
Bengalene R — **Victoria Blue B Crystals**
Auramene OOD — **Methyl Violet 6BX**

Diamene Fast Light Yellow C. H. — **Chrysophenene G Extra**
Diamene Bordeaux BX — **Benzo Fast Brown R**
Benzo Fast Green BX — **Benzo Fast Orange RRS**
Pluto Brown, B and G shades

BENZO FAST SCARLET 4BS — **BENZO FAST SCARLET 8BS**
BENZO FAST RED 8BL
Fast to acids and alkali

CHLORAMENE FAST PINK — **CHLORAMENE FAST ORANGE**
CHLORAMENE FAST ROSE
Leave silk white, fast to acid and alkali

BRILL. GERANENE BB — **M-ERIKA B**
Discharge white, fast to acid and alkali
BENZO SKY BLUE 6BX
Most greenish and brightest produced

Anthracene Chrome Blue — **Anthracene Chrome Red**
Diamond Blue Black — **Anthracene Chrome Orange**
Meta Chrome Brown — **Palatene Chrome Green**
Diamond Milling Green — **Acid Victoria Blue B**
Acid Violet 6B — **Formyl Violet 6 B**

Tri-Sulphur Blue KTG — **Tri-Sulphur Sky Blue KTG**
Tri-Sulphur Brown RRR — **Tri-Sulphur Orange KTG**
Tri-Sulphur Black KTG — **Tri-Sulphur Green 2G**

AND ALL OTHER SHADES AVAILABLE

Prices for spot or contract "from *one* pound to a million" and samples cheerfully furnished

P. S.—Submit product—samples of colours you are using now to our Analytical Department and we will show you whereby you may save money.

THE ALMARIN COMPANY

A. ANDREW ROBINSON, *President*

MANUFACTURING CHEMISTS

Cable Address: Almarin, N. Y.

NEW YORK, U. S. A.
(Singer Building)

18 Years of Chemical Progress

Dye, Bleaching and Finishing Technical Section

Chemistry in Khaki for Past Four Years

Service in War Indicates Future Possibilities in Peace

By *Carl Frederick Woods**

THE response of American manhood to the call of duty will ever be a bright page in the history of this country. Of all the outstanding developments of the war, none is more striking than the cheerful submergence of individual aspirations, and the instantaneous grasp of the spirit of service. Future generations will have before them a concrete example in the formation of our armies of the wonderful ability of a democracy to arrange itself along the lines that lead to highest efficiency voluntarily, quietly, and rapidly.

WORK SURROUNDED BY DANGERS

It is but fair, as our soldiers return to civil life, bearing the well-deserved laurel of victory, to recognize the other type of service rendered by our chemists and chemical engineers. Their path of duty, leading to the explosive plants and research laboratories on poison gas, was frequently surrounded by dangers of injury and death to the individual, no less real and in many cases far greater than the front-line trench. To them, in large measure, was denied the fierce joy of combat and its opportunity for striking deeds of courage and heroism.

Of others, their plain duty demanded the unostentations and quiet application of their specialized knowledge in factory, laboratory, and college, to the end that the combat units might be furnished with trained men, with clothes, with munitions, and with food. Thus, by their efforts, they were enabled to relieve the strain on men and resources and eventually to decide the issue.

Therefore, a brief consideration of the accomplishments of American chemists in war may be of interest, and it may, indeed, indicate certain future possibilities along the lines of peace.

DEVELOPMENT OF HIGH EXPLOSIVES

Most of us realize the more obvious aspects. The development of high explosives was clearly an achievment of technical knowledge, but just how great an achievement is better appreciated if one thinks for a moment of the astounding accuracy of modern gun-fire. In order that this might be accomplished, it was necessary, first, to develop explosives of greater power than previously employed, and as these were developed it became equally necessary to develop types of steel which could withstand the enormous disruptive force of the explosion, and far greater than all these was the necessity of such rigid control of manufacture that each and every charge of explosive should be as nearly as possible identical with every other, because the distance to which the projectile travels and its striking impact are direct factors of the explosive itself and are profoundly influenced by very slight impurities.

ACHIEVEMENTS IN GAS WARFARE

The necessity of protection against poison gases, whose use was inaugurated by the Germans, demanded at once a thorough knowledge of the materials in use by the enemy, and the development of means to protect soldiers from their effects. As soon as the nations grasped the fact that this type of warfare had been forced upon them it became necessary to obtain supremacy in the offensive gas warfare, and the achievements of American chemists in this direction, although still of necessity surrounded with secrecy, will some day make a very interesting chapter in the history of applied science.

The production of smoke screens in the Navy as a protection against submarine attack, and to conceal naval operations, is another chemical achievement.

Worthy also of mention is the production of incendiary bullets for igniting the hydrogen with which Zeppelins were filled, and the production of signal smokes, flares, star-shells and tracer-bullets.

NITROGEN AND POTASH SOURCES

The attention of chemists had, for some time, been fixed upon the necessity of obtaining a new source of fixed nitrogen, of vital importance in fertilizers and explosives, as the world was practically dependent upon the saltpeter beds of Chili, and these were by no means inexhaustible. The outbreak of war made this of imperative importance. Although Germany had secretly accumulated vast stores of saltpeter prior to 1914, the demands of modern warfare would have made her surrender early in the game had not her chemists shown the way to obtain this essential material from the air, which contains four-fifths nitrogen and furnishes an inexhaustible supply.

American chemists attacked the problem with great vigor, improved methods already known, and invented new ones. Several large plants have been erected, and it can confidently be predicted that no future cause for apprehension on this score need exist.

In 1914 the world was entirely dependent upon Germany for potash, another essential material for maintaining the fertility of the soil and used extensively in most industrial processes in one form or other. Germany possesses the only great natural deposits of approximately pure potash salts and, while methods of extraction from various substances were known, none of them was practical from a commercial standpoint or in operation at that time.

Our chemists found and developed three great sources: In California there exists a large body of mineralized water known as Searles Lake, from which potash in commercial quantities was extracted. In Utah was found the mineral alunite, which, by roasting and subsequent leaching, yields a respectable amount of potash; and, third, there has developed upon the Pacific slope an industry that Alice might have found in Wonderland—the giant kelps obtainable in vast quantities are made to yield potash, acetic acid, acetone, and numerous other valuable chemical products.

OPTICAL GLASS AND PORCELAIN

In the same manner Germany had controlled the manufacture of optical glass and Jena glass was supposed to be impossible to replace. We have had no Jena glass for some time, but the binoculars and other optical instruments of the army and navy have been produced, and we have suddenly awakened to the ephemeral character of another German myth. So also has been the development of porcelain from American clays.

Turning to the textile field, the part which chemistry has played is by no means so spectacular, but the results achieved may be equally far-reaching. At the outbreak of the war, the world was to all practical purposes entirely dependent upon Germany for synthetic dyes. The recognition of the commercial value of chemistry and Germany's early realization that the same intermediate substances from which dyestuffs are made are also the basis of modern high explosives, led to an extensive development of the coal tar dye industry.

Through her extensive system of propaganda Germany had cleverly deceived the world into believing that the dye industry was in some peculiar manner the personal property of the German empire, and that it was useless for any other nation to attempt to compete. Sporadic attempts had been made, both in this country and in the other allied countries, but most of them resulted in failure for various reasons, and it was the natural impression, as an international war was undreamed of, that there was no object in engaging in the industry so long as we could purchase dyes from Germany at low prices. The idea was cleverly disseminated that the German monopoly was in a large measure due to the superiority of her chemists and to low-priced labor, both of which have subsequently proved to be entirely untrue.

DYESTUFF INDUSTRY NOW ESTABLISHED

We are all familiar with the situation that immediately developed in the textile industry. Dyes selling for 15 cents a pound immediately soared to as many dollars per pound, and often were unobtainable at any price. American capital and American chemists, however, at once attacked the problem of synthetic dye production, with the result that in the year 1918 the American industry was supplying the domestic market with most of the colors needed and actually exporting dyestuffs to a total value exceeding the amount which this country had formerly imported annually. Despite the higher prices, it is a remarkable achievement.

This, one of the most complex and intricate of chemical industries, is now established. It would be idle to boast that it had developed all the yields and refinements that were characteristic of German practice before 1914. The work has been of illimitable detail and the progress in this country is far greater than that in any other except Germany and, possibly, Switzerland. The manufacturers themselves believe that if they are able to work out their problems for a reasonable time, and with ample tariff protection, this country will be able to compete openly in the world's markets.

PAPER TEXTILES

One of the most impressive developments of the war as it affects the textile industry has been the extensive utilization of paper in place of textile fabrics. Abroad, and particularly in Germany, extensive use has been made of paper hats, shoes and clothing. This has not been so noticeable in this country, as we had not reached the same stage of exhaustion of textile resources as some of the other countries, but, even here, there has been a marked replacement of burlap by waterproof wrapping papers, and of the use of cheaper fibers in place of those which for generations had been considered essential.

While the paper textile industry has had a material growth in England, particularly in the manufacture of substitutes for burlap sacks and bags, it is doubtful whether it will continue on return to normal conditions. Economic conditions in the Central Empires, however, may tend to the further extension of this industry, which has assumed large proportions under the necessities of war.

There has been produced, both in this country and in England, a substitute for absorbent cotton which bids fair to maintain its position under peace conditions. It is made from bleached spruce fiber, treated in a special manner, and resembles superficially absorbent cotton very closely. It, however, actually possesses considerably greater absorbent po ver.

The demand for gauze bandages, rising during the periods of great battles, in excess of the supply, led some time ago to the substitution of paper bandages, and, strangely enough, surgeons soon found that a paper bandage is in many ways superior, particularly for use in the emergency hospital, because one of the most serious difficulties for surgeons working under great pressure is to bandage a bad wound sufficiently tight to keep the bandage in place, but not so tight as to cause undesirable pressure. The paper bandage, owing to its lack of strength as compared with a gauze bandage, makes it impossible to bind the wound too tight; nevertheless, it does possess sufficient strength to enable a proper covering to be placed upon the injured member.

At the outbreak of the war it was assumed that linen was the only satisfactory fabric for covering aeroplane wings. The demands made upon the wings necessitated a very light, strong fabric which must possess the property of allowing a bullet to penetrate without subsequent tearing of the cloth around the hole so made. It was apparent that the air program would require a supply of linen far in excess of the available quantity and experiments

* Secretary, Arthur D. Little, Inc.

Solves Starch Problems

There is a grade of Douglas Starch that meets the special requirement of every textile mill.

We make starch to order according to your specifications. We also manufacture Douglas Standard grades for every textile purpose.

Each of these grades is the final perfection of starch for its particular use.

The use of these special Douglas starches insures greater efficiency in loom production. Douglas Starch is a better sizing for weight or production, whichever is desired.

The use of Douglas starches results in greater breaking strength, penetrates and adheres to the warp better. It also produces a more pliable warp.

Douglas starch is free from all impurities or foreign matter. Every ounce is 100 per cent starch, no waste whatever.

We offer the services of our expert starch men to confer with your expert mill men in working out and solving your sizing problems.

Set a day and hour for an interview and our man will be there without expense or obligation to you.

Douglas Textile Starch

Made by the

DOUGLAS COMPANY, Cedar Rapids, Iowa

Manufacturers of Corn Products

soon resulted in the substitution of mercerized cotton which has fulfilled all of the requirements imposed by the peculiar nature of the service.

The war has also brought about an extensive use of paper twine, both of the type made entirely from paper and of another type which consists of a fiber core and an outer wrapping of paper to give bulk and pliability. It may be open to question whether paper twine is a real substitute for that made of jute and hemp, but it is probable that its present widespread use will not be entirely discontinued. As was the case in clothing fabrics, so also has there been an extensive growth in the use of cotton blankets.

MOHAIR FOR POWDER BAGS

Another interesting development brought about by warfare has had to do with the bags which contained the powder charge in large caliber guns. This powder was formerly placed in bags made of silk, which apparently was the only material which met the requirements, namely, that it shall burn completely and instantly, and that it does not carry a spark. Cotton and other fibers would not meet these qualifications, but as a result of careful investigation, it was found that a certain type of mohair did possess the requisite qualities.

Widespread interest in applied chemistry has already resulted. America has not yet fully found herself in a chemical sense, but we seem to be on the road to it. The essential thing is for manufacturers to get the chemical point of view, to think of things in a chemical way. For instance, let us say a piece of goods is claimed to be all wool and a yard wide. We measure the width with a stick and prove one feature, but it is just as easy to boil a little of it in a solution of caustic soda in a test tube over an alcohol lamp, and watch the wool dissolve, for the other. We all know the test, but, just because it is a chemical one, people seem to fight shy of it. And yet it is as easy as measuring the width with a stick.

The textile manufacturer has not solved all of his mechanical problems, but he does recognize them and their nature. Does he, on the other hand, realize his chemical problems? He has them, but does he think of them?

Many clear thinking men believe that the ultimate solution of the struggle between labor and capital lies in increased efficiency of production, in order that labor may get higher wages and capital its fair return. Industrial chemistry will not accomplish this alone, but industrial leaders will make distinct progress in this direction by grasping the chemical point of view.

Dyeing Fast Shades on Worsted Yarns

Preparation of the Material—Dyeing Instructions—Machinery Equipment

By *Dr. Louis J. Matos*

THERE is every reason to believe that among other fabrics for men's wear, those containing stripes of various kinds and colors will occupy a prominent place, at least among the better grades. These fabrics are chiefly made from dyed yarn, although some mills have made these goods from yarns that were dyed in the wool. As a rule, however, the greater portion is made from yarns dyed in the skein.

The colors that should be selected for this work are of the mordant type; that is, those dyes that possess maximum fastness that are applied to the wool by means of chrome, either as a bottom, or where it is applied to the yarn towards the end of the dyeing operation and in the partially exhausted dyebath, or in a separate and final chrome bath. Whatever method of dyeing is chosen by the dyer, the main point to keep in view is the proper preparation of the yarn, which above all else should be absolutely clean. Yarn that is not clean cannot be expected to take the color evenly, and in some cases may be the cause of some of the dyes crocking.

PREPARATION FOR SKEIN DYEING

To properly prepare good quality yarn for skein dyeing requires that the mill be equipped with suitable machinery and good water. The scouring plant should be sufficient in extent to handle the work without crowding, so as to deliver the batches in the best of condition. Hand scouring is rapidly passing, indeed, there are but few mills doing it, while machine scouring is recognized as the only economical method of working. In any case, and by whatever method of scouring adopted, the object is to scour out all the oil and other dirt that the skeins may have, before they are passed along to the dyehouse.

The most satisfactory oil for wool is without doubt olive, but for years past the use of this product has practically ceased on account of the constantly increasing cost, and from the fact that compounds of mineral oils have been found to give very good results. In the old days when mineral oil was first used in the picker house, a heavy oil was most common and it was with difficulty emulsified in the scouring, in fact some soaps utterly failed to dislodge it. In later years the producers of mineral oils succeeded in developing products that emulsified readily, and which left the material in an excellent condition for mordanting or dyeing.

HARD WATER MAKES DIFFICULTIES

The great difficulty that has been frequently encountered in many mills attempting to do the better class of work on worsted yarns, has been the presence of lime in the water, and which necessitated the introduction of a softening process. Some mills have endeavored to get along with such water without attempting to remove the lime, but invariably met with disaster.

The writer has in mind a mill located in Canada where the quality of its water supply fluctuated seriously from week to week, and as a consequence caused a great deal of trouble both during scouring and dyeing. Lime salts formed which promptly deposited upon the yarns, the result being that batches of dyed yarn were blotchy and quite irregular. At other times the dyed yarn was very good.

For a while these fluctuations were very puzzling, until it was found that the volume of water flowing to the mill, due to melting snows on the one hand or partial drought on the other, diluted or concentrated as the case might be the amount of dissolved lime salts at the mill intake. After several trial runs made in the mill under varying conditions this condition of affairs was definitely decided upon and the recommendation was made that the water supply should be purified, since it was out of the question to get water of better quality to the mill, or to remove the mill to another location. In course of time a water purifying plant was installed making use of the lime and soda method and which removed the difficulties. This is merely one case; numerous others could be cited.

A CAUSE OF UNEVENNESS

After scouring the wool with soap, rinsing always follows, but it stands to reason that if the rinsing water contains lime or magnesia, corresponding lime and magnesia salts will form which deposit upon the wool. These insoluble salts have the property of causing a greater deposit of dyestuff to form and where the lime is deposited unevenly, deeper dye spots will show. It, therefore, means that for the very best results the wash water should be as pure as possible and the softer the better. Where chrome mordant colors are to be applied, the wool before dyeing should be as free as possible from remaining traces of soap and other impurities.

Chrome colors are used almost exclusively for the faster shades required for women's and men's outer garments. Striped worsted effects and stripes and checks on woolen goods that are to be fulled, where the wool is dyed in the raw stock, call for colors that will dye level, and when dyed will resist not only the fulling process but the subsequent exposure to the wear and weather.

DIRECTIONS FOR MORDANTING

The colors are applied to wool by the usual operation of mordanting the wool with bichromate of potash. The general method familiar to most dyers is to apply bichromate of potash according to the depth of shade desired, and which may vary from 1 to 4 per cent of bichromate and 1 to 3 per cent. of crude argols, or as is common in many mills, a corresponding amount of lactic acid.

Mordanting progresses at the boil for about 1½ hours, when the yarn is lifted, well rinsed and dyed in a fresh bath with the addition of 1 to 3 per cent. of acetic acid or with 5 per cent. of acetate of ammonia, which latter is preferably used for pale shades and also to aid in producing level tones. As a rule the yarn is entered into the dye bath at about 110 deg.; the temperature is then raised within half an hour to the boil and boiled for 1½ to 2 hours, adding a small amount of acetic or formic acid in order to exhaust the dye bath.

For very heavy shades a small amount, say 12 ounces, of bichromate of potash may be added directly to the dyebath towards the end of the boil. This practice is particularly recommended where the finished colors are likely to be subjected to heavy fulling.

A word of caution is necessary in mordanting; if too much bichrome is employed for this purpose there is a tendency to overchroming. In other words, too great a deposit of chrome on the fiber for the amount of dye necessary to produce the shade wanted. This so-called overchroming has been a dominating factor in many cases where the dyer has failed to obtain the proper shade. This has always been recognized by the experienced logwood dyer.

It is indeed better that there should be a slight insufficiency of chrome than an excess. In order to determine the exact amount of color required for a given shade means that preliminary dyeing trials should be systematically carried out.

AFTER CHROMING PROCESS

Another method of applying chrome colors to wool is the so-called after chroming process which has two general modifications, one in which the dye bath is prepared with the addition of about 2 to 3 per cent. of acetic acid and 10 per cent. glauber salt and the dyestuff according to shade. The yarn is entered at about 110 deg., raised within a half hour to the boil, and after one-half hour's boiling the bath is gradually exhausted by the addition of from 4 to 6 per cent. acetic acid or 1 to 3 per cent. of oil of vitriol properly diluted according to the depth of shade. The bath is then allowed to cool off slightly, when the dyer adds bichromate to the bath equal to about one-half the weight of the dyestuff used. Boiling is continued for about one-half hour, after which the yarns are lifted, washed and dried.

Another modification of this process makes use of oil of vitriol, from 1 to 4 per cent. according to depth of shade desired, and 10 per cent. of glauber salt. The yarn is entered at about 130 deg., gradually raising to the boil in one-half hour; afterwards boil for one hour, cool off somewhat, when a small addition of bichromate is made to the bath and boiling continued for three-quarters of an hour. Some colors require for complete exhaustion an addition of about 1 per cent. of oil of vitriol to the bichrome with boiling continued for about three-quarters of an hour.

LIGHT AND MEDIUM SHADES

The chromate process combines many features of utility, inasmuch as the bichromate of potash is added directly to the bath along with the dyestuff, and lends itself admirably for the production of the light and medium shades. The bath is prepared at about 160 deg., with the dyestuff required for the shade and a quantity of bichromate of potash equal to about one-quarter the weight of the dye. Enter the goods, raise to the boil in about twenty minutes and continue boiling for about one and one-half hours. Where deep shades are sought the addition of from 1 to 3 per cent. of acetic acid is permissible.

There are a number of modifications of this so-called chromate process depending upon the chemical nature of the particular dyestuff used, the exact details for which may readily be ascertained by laboratory trials.

Bichromate of soda being less costly than bichromate of potash can be used where the potash salt is indicated in the recipes. It is possible that for some time to come the potash salts will not be common in the market, but dyers during the past few years have gradually accustomed themselves to use the soda salts where at one time, owing to the ease of procuring and relatively low cost, the bichromate of potash was used. The soda salt was seldom seen in a dye house.

MECHANICAL EQUIPMENT

The mechanical equipment of a dye house for chrome colors does not differ materially from that used for the general run of acid colors, but the use of hand kettles is rapidly on the decline. Competition is compelling mills to eliminate as much as possible all work formerly done by hand that can be done better and more efficiently through the introduction of modern mechanical appliances.

There are to-day in use a number of dyeing machines capable of large output which lend themselves admirably

Most Mills

are not satisfied to use just ordinary supplies. They want something a little better, and this is why so much preference is given

Wyandotte Textile Soda

Wyandotte Concentrated Ash

AND

Wyandotte Kier Boiling Special

They realize a little more time is given, a little more care is used, and a little more thought is put into the manufacture of these unusual products.

This explains why their use produces results which cannot be obtained from the use of other products—results which are superior—results which never cost more, but often cost less than former processes.

If you are not a user of one or more of these products, write us what class of products your mill is making, and we will tell you where and how you may profit by the use of these unusual materials.

Order from your supply house. Jobbers stocks are also supplemented by storage stocks in all parts of the country.

THIS TRADE MARK

IN EVERY PACKAGE

THE J. B. FORD COMPANY

Sole Manufacturers

Wyandotte, Michigan

to the dyeing of chrome colors. These machines may be conveniently divided into two particular groups or classes—one where the yarn is caused to rotate in the dye liquor, the hanks being loosely stretched from very near the revolving central axle to the outer edge of the spiders—while the other type of machine holds the hanks loosely in a vertical position in a cage or frame which oscillates vertically in the dye liquor. The final result in either case is about the same, while it cannot be doubted that the quality of the dyeing produced on either of these two classes of machines is much superior to that dyed from the old type of open hand kettle which is being wholly supplanted in modern mills.

The apparent advantage of either of these two types of machine is that when the dyeing is finished the contents of the kettle may be run off and, without disturbing the yarn, wash water may be run in, the machine put in motion, and the washing effectively completed, when the yarn can be removed whizzed and dried.

For the better grades of woolen and worsted yarns there is no doubt about the less handling it receives the better its condition for warping and weaving, and this tends to enhance the value of the finished piece of cloth.

Heat Losses from Pipes and Boilers*

Investigation Conducted by Mellon Institute of Industrial Research

By *Glen D. Bagley*

IT is generally recognized that the losses from bare pipes and boilers are considerable, but the real magnitude of these losses is little appreciated. The fact that the loss from 1,000 sq. ft. of exposed surface at 100 lb. per sq. in. steam pressure amounts to over 300 tons of coal annually is sufficient justification for serious consideration of the subject.

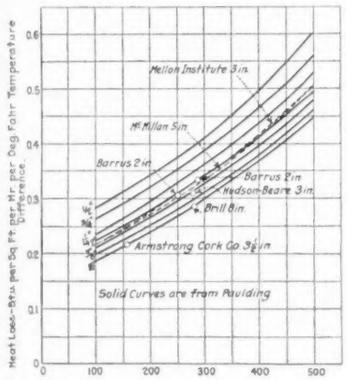


FIG. 1—HEAT LOSS FROM BARE PIPE

In the study of the conservation of losses, the first important fact to be considered is the actual value of the losses from bare surfaces. It is often considered that the loss from any bare surface is 3 B.t.u. per sq. ft. per hr. per deg. fahr. temperature difference between the surface and the surrounding air. While this value is correct for some special cases, it is by no means generally so. Most investigators have confined their measurements to one size of pipe at one temperature difference. Both the size of pipe and the temperature difference have an important effect on the value of this constant.

Paulding in his book on Steam in Covered and Bare Pipes has worked out the theory of heat losses from bare pipes from the researches of the French physicist Péclet. The curves of Fig. 1 show the application of this theory to horizontal pipes. The solid curves indicate Paulding's values, while the dotted curves and the points give the results of various experimental tests. The curve made at the Mellon Institute on 3-in. pipe coincides at the lower end with Paulding's curve for 3-in. pipe, but rises somewhat more steeply. McMillan's curve on 5-in. pipe coincides at both ends with the Mellon Institute curve but is somewhat lower throughout its length.

The single points made by other investigators coincide closely with Paulding's curves. It seems that Paulding's curves give the best average values for use in calculating heat losses. They show that the constant may vary from 50 per cent. below 3 B.t.u. per sq. ft. per hr. per deg. fahr. to values far above it. At 500 deg. temperature difference, which is often attained with superheated steam, the constant increases to double this value for the smallest size of pipe. In some chemical plants steam is used at temperatures of 1100 deg. fahr. The importance of using very thick insulation at these temperatures is easily judged from the rate at which the loss is increasing at 500 deg. fahr. It is to be noted that these values are all considerably higher than

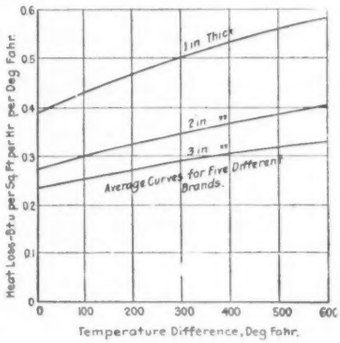

1 in Thick
2 in "
3 in "
Average Curves for Five Different Brands.
Heat Loss-Btu per Sq Ft per Hr per Deg Fahr.
Temperature Difference, Deg Fahr.

FIG. 2—HEAT LOSSES THROUGH 85 PER CENT. MAGNESIA COVERINGS ON 3-INCH PIPE

the values given in Kent for losses from bare surfaces.

LOSS FROM INSULATED PIPES

The next important point in a consideration of the conservation of heat losses is the value of the loss after the pipes are insulated. Tests were made on five different makes of magnesia, in 1-in., 2-in., and 3-in. thicknesses. The results of these tests are shown in Fig. 2. These curves are all corrected for slight variations in thickness so that they are the true curves for the thickness given. Fig. 3 gives a comparison of the losses from a bare pipe with the losses through coverings 1 in., 2 in. and 3 in. thick. The contrast is very striking. The efficiency increases with the temperature as the loss from bare pipe increases much more rapidly in proportion than the loss from covered pipe.

PERMANENCY OF INSULATING QUALITIES

An important point in considering pipe coverings is the permanency of their insulation value. Tests were made on several old magnesia coverings. Fig. 4 shows the conductivity of a 1-in. thick covering which had been in service at the Armour Glue Works in Chicago for 8 years. The conductivity was slightly lower than the average of the new 1-in. coverings tested, showing that no deterioration in service had taken place. Several sections were obtained which had been saturated with

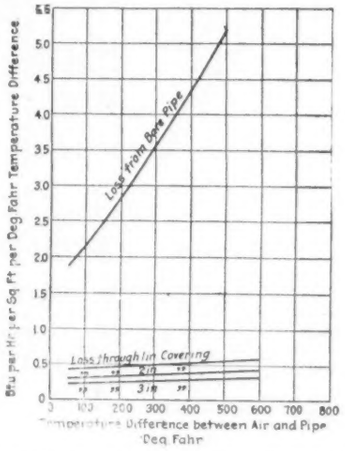

Btu per Hr. per Sq Ft per Deg Fahr Temperature Difference
Loss from Bare Pipe
Loss through 1in Covering
Temperature Difference between Air and Pipe Deg Fahr

FIG. 3—HEAT LOSSES FROM 3-INCH PIPE WITH 85 PER CENT. MAGNESIA COVERING

oil. Tests on these showed much lower insulation values than new coverings. The damage was permanent and shows that care should be used to protect coverings from oil while in service.

ECONOMIC SIDE OF PROBLEM

After considering the technical and theoretical side of heat losses from bare and covered surfaces, the next point is the economic side of the problem. In most cases the result desired is the maximum net saving of money for any given condition. If the covering cost were nothing, the proper thickness would be limited only by the requirements of space available, as each increased thickness would result in some slight increased saving in heat. In a practical case where the covering has a finite cost, a point is soon reached where the increased cost of the covering would be greater than the additional saving in heat effected. The determining of this point is the thing in which the user of coverings is interested, as it is just at this point that the maximum net saving is accomplished.

COST OF COVERINGS

For flat surfaces the price is directly proportional to the thickness, starting at 30 cents per sq. ft. for coverings 1 in. thick. The difficulty of manufacture of molded coverings for pipes results in an

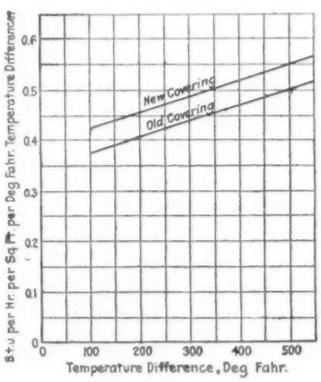


FIG. 4—COMPARISON BETWEEN OLD AND NEW COVERINGS

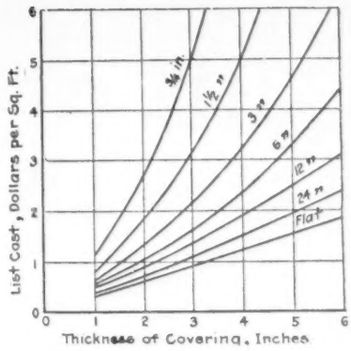


FIG. 5—COST CURVES FOR DIFFERENT SIZED PIPES

increased cost per sq. ft. for a 1-in. thickness and the cost increases much more rapidly with the thickness than in the case of flat surfaces. More material is also required in molded coverings per sq. ft. of pipe surface than in the same thickness in flat blocks on account of the curvature of the surface.

By means of the curves of Fig. 5 the cost per sq. ft. of surface covered can be determined for any thickness desired. From this cost the annual fixed charges due to the covering can be calculated. After considerable investigation it was decided that 20 per cent. of the list price of the covering would be allowed as the cost of application, and 13 per cent. of the total cost as the annual charges (6 per cent. interest, 5 per cent. depreciation and 2 per cent. insurance and miscellaneous). This fixed charge was calculated for seven different sizes of pipes

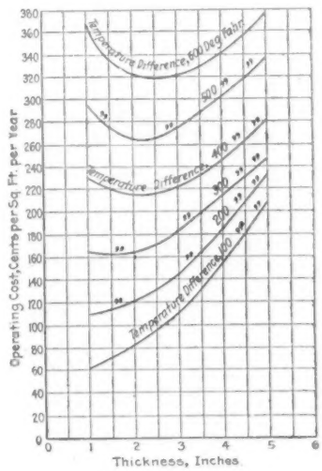


FIG. 6—CURVES FOR ¾-INCH PIPE. STEAM COST, 80 CENTS PER 1,000,000 B.T.U.

and five different thicknesses, based on list cost of covering.

OPERATING EXPENSES DUE TO LOSSES

The other cost to be charged to the operating expenses of the covering is the value of the heat losses through the different thicknesses of coverings. The previous work done on measuring the loss through 15 samples of magnesia furnished the necessary data for calculating the loss in heat units. After the heat loss was determined it was necessary to convert the loss into dollars and cents. The assumptions used in making this conversion were that the cost of coal is 75 per cent. of the cost of steam, that 1 lb. of coal as burned will evaporate 7 lb. of water from and at 212 deg. fahr., and that each pound of steam contains 1,000 B.t.u. above the feedwater temperature.

*From paper presented at meeting of A. S. M. E.

THE ARABOL MANUFACTURING CO.

Offices: 100 William Street, New York City — **WORKS: BROOKLYN, N. Y.**

SPECIAL COMPOSITIONS FOR WEIGHTING — **COTTON WARPS**

EVERYTHING IN
SIZINGS FINISHING PASTES
SOFTENERS SOLUBLE OILS
STARCHES AND GUMS

BELLICOSA A Softening or Finishing Powder, bone dry, for Weavers, Bleachers and Printers, Snow-white. No freight on water. Less expensive than Liquid Finishing Pastes.

Sizing Tallows, Softeners, Alizarine Assistant, Warp Sizes of all Kinds, Filling Materials, China Clay, Stiffening Gums, Rosin Soaps, Palm Oil Softener, etc., etc.

CORRESPONDENCE SOLICITED

JACQUES WOLF & COMPANY

Manufacturing Chemists and Importers

MAIN OFFICE AND WORKS - PASSAIC, N. J.
NEW YORK OFFICE - 100 WILLIAM STREET

Sizings and Finishing Products for Cotton, Wool and Silk

All Sulphonated Castor Oils
Hydrosulphites for All Purposes
Bleaching Oil
Monopole Oil U. S. Patent No. 861,397 Serial No. 367,303
Alizarine Yellows
Fast Green Paste
Chrome Black
GUMS: Arabic, Karaya, Tragacanth, Textile

WESTERN REPRESENTATIVES
UNITED INDIGO & CHEMICAL CO., Ltd., 218 West Kinzie St., Chicago, Ill.

Starch

EFFICIENCY and ECONOMY are the watch-words today, Modern mill men who hold to this motto are discarding ordinary, imperfectly refined starches and selecting those special types best suited for their individual conditions.

Some desire increased weight, all need increased strength and better weaving qualities for the warp.

You know the result you seek.

We know and can provide the proper type of STARCH:

EAGLE FINISHING
C. P. SPECIAL FAMOUS N

BLEACHING and FINISHING PLANTS have learned that "any old" STARCH or DEXTRINE will not do the work.

To secure the proper "feel", the desired weight, the attractive finish, careful discrimination must be exercised in selecting

STARCHES and DEXTRINES

We manufacture all approved varieties.

500 MILL 400 MILL
BLUE RIVER CRYSTAL
DEXTRINES AND GUMS

CORN PRODUCTS REFINING COMPANY
17 BATTERY PLACE NEW YORK

Starch

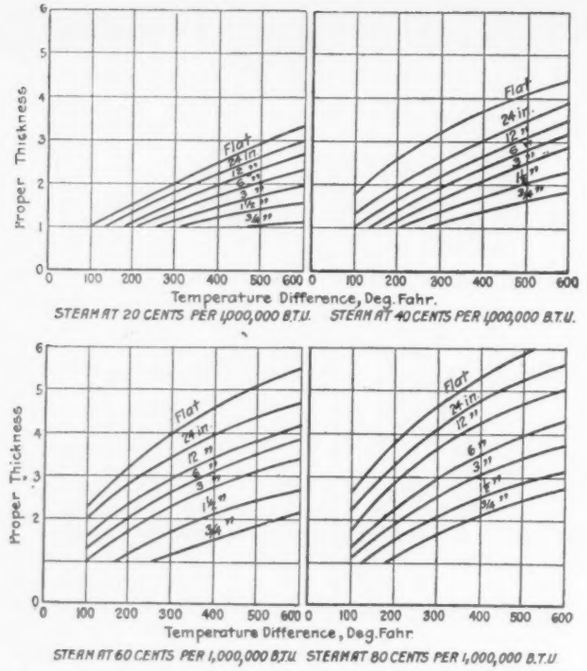

Proper Thickness
Temperature Difference, Deg. Fahr.
STEAM AT 20 CENTS PER 1,000,000 B.T.U.
STEAM AT 40 CENTS PER 1,000,000 B.T.U.
Proper Thickness
Temperature Difference, Deg. Fahr.
STEAM AT 60 CENTS PER 1,000,000 B.T.U.
STEAM AT 80 CENTS PER 1,000,000 B.T.U.

FIG. 7—THICKNESS OF 85 PER CENT. MAGNESIA FOR MAXIMUM NET SAVING

The value of the heat losses was calculated for seven sizes of pipes, five temperature differences between pipe and air, and four different costs of heat, both on the basis of a known cost per million B.t.u. and on a cost per ton of coal and the average conditions of steam generation given above. By making these calculations both ways, the results are applicable to plants where the steam costs are accurately known, as well as to those where accurate records are not kept.

By combining the fixed cost and the heat losses per sq. ft. per year, the total operating expenses were obtained. Once these are obtained, it is simply a matter of picking that thickness which gives the minimum annual operating expense to obtain the proper covering to use. It is evident that the thickness which gives the minimum operating expense also gives the maximum net saving, as the loss from bare pipe is a constant under given conditions and the net saving is the difference between the operating expense and the loss from bare pipe.

SELECTION OF COVERINGS

The way in which the covering which gave the lowest operating expense was chosen was to plot curves of the type shown in Fig. 6 for the total operating expense for five different thicknesses. By selecting the thickness corresponding to the lowest point on each curve, the proper thickness of covering to be used for the temperature difference corresponding to that curve was obtained. One set of these curves was plotted for each size of pipe at each of four different steam costs. From this set the thickness curves given in Fig. 7 were derived, and from the thickness curves Table I, showing the proper thickness in relation to coal cost per ton, was obtained by making the assumption previously explained.

From these curves and tables the proper thickness to use in order to obtain the maximum net saving under any condition may easily be determined by anyone interested.

TABLE I. THICKNESS OF 85 PER CENT MAGNESIA FOR MAXIMUM NET SAVING

Thickness in Inches. S = Standard Thickness

Size Pipe, Inches	Hot Water, 175° F.	Steam, 5 Lb.	Steam, 100-200 Lb.	Steam, 150° F. Superheat.	200 Lb. 300° F. Superheat.
Coal at $2 per Ton					
¾	S	S	S	S	S
1½	S	S	S	S	2
3	S	S	S	1½	2
6	S	S	1½	2	2
12	S	S	2	2	3
24	S	S	2	3	3
Flat	¾	1½	2	3	3½
Coal at $4 per Ton					
¾	S	S	S	1½	2
1½	S	S	1½	2	2
3	S	S	2	2	3
6	S	S	2	3	3
12	S	S	3	3	4
24	S	S	3	4	4
Flat	2	2	3	4	4½
Coal at $6 per Ton					
¾	S	S	1½	2	2
1½	S	S	1½	2	3
3	S	1½	2	3	3
6	S	2	2	3	4
12	1½	2	3	4	4
24	2	3	3	4	5
Flat	2½	3	4	5	6½
Coal at $8 per Ton					
¾	S	1½	1½	2	3
1½	S	1½	2	3	3
3	1½	2	3	3	4
6	1½	2	3	4	4
12	2	3	3	4	5
24	2	3	4	5	6
Flat	2½	3½	4½	5½	6½

Dye Making in Great Britain

To Have Complete Industry— Terms of Government Assistance

By *J. A. Hunter*

An agreement made with an American company explains the precise form in which the State-aided British dye-making company is rearranging its affairs. The agreement between Du Pont de Nemours & Co., and Levinstein, Ltd., Manchester, provides for certain payments by the American company and for the exchange of information and processes for the manufacture of dyes and intermediate products.

To amalgamate Levinstein, Ltd., with British Dyes, Ltd., and to prevent the extension of the agreement to a concern to which it did not apply, offered some difficulty. The trouble is being surmounted by forming a purchasing company, the British Dyestuffs Corporation, Ltd., to buy the shares of Levinstein and British Dyes, Ltd., and these two concerns, while working together under a single directorate, will preserve separate identities as "British Dyestuffs Corporation (Huddersfield), Ltd.," and "British Dyestuffs Corporation (Blackley), Ltd." Together they form the national British dye manufacturing undertaking, and at this late date have come together on a basis that ought to have been found years ago.

Levinstein, Ltd., who have devoted themselves to finished colors and Government goods, and British Dyes, Ltd., who have been making munition supplies and intermediates mainly, are in a large measure complementary. One has what the other lacks, and jointly they make a complete concern. They are being brought together under a new directorate, with the technical heads of both businesses on the board, together with two Government nominees, a distinguished patent lawyer for president and three business men. W. H. Aykroyd (B. D. A. & T. F. Firth & Sons) and G. P. Norton, textile accountant, are two of these men. This board has the approval of the Government department and of all the large associations of color consumers, and it is making virtually a fresh start.

ROAD CLEARED FOR PROGRESS

A schedule has been compiled from all sources showing exactly what kinds and quantities of color were employed in the British industry in 1912-1913, and the organization of the production and supply has been begun. Certain people have been told off to produce certain colors, and arrangements have been made for the purchase of others. The trade is thus in better trim for getting the colors it needs than ever before, although there are regrets over being so long about it.

The delay arises primarily from ignorance on the part of the Government men, who had to see the business through. Ministers no sooner began to understand the bearings of the problem than they were changed, and the director in charge at Huddersfield had the whole business to learn. The affair has been rescued from their hands and given to go-ahead people who, of course, have advantages denied to their predecessors. Raw materials, reagents, intermediates, metals, bricks and mortar and labor can all be got more easily than before. The course is comparatively clear and the execution of plans of all kinds is facilitated.

TO MEET ALL DEMANDS

The intention is to supply the goods, and the organization is designedly left so that new works can, if deemed desirable, be incorporated. Others will be qualifying for Government financial assistance, but this help is reserved for manufacturers who consent to certain terms. Assistance is not being given to dye-making as such, but only to those developments which directly minister to pressing needs. It is recognized that business must be carried on upon a scale more than large enough to feed the home market in order to render competition with Germany commercially possible, but the main purpose of all assistance in cash or in kind is first to meet all round the British demand for colors of the requisite quality at reasonable prices.

FORM OF GOVERNMENT ASSISTANCE

Assistance, under the terms of the latest memorandum, may take the form of loans at a commercial rate of interest for the production of colors not already made on a sufficient scale. Alternatively, grants-in-aid can be made to cover the excess cost of plant and buildings, and the grants are limited to 40 per cent. of the cost. Technical research is recognized as an essential part of the dye industry, and up to 40 per cent. of the cost of laboratory extensions and upkeep may be borne by the State.

STATE AID RESTRICTIONS

Recipients of loans or grants are obstructed from paying more than 6 per cent. upon the amount of their effective capital until the loans are repaid, and it is a condition that loans are repayable within twenty years. A Government veto may be exercised upon increases of fees and salaries, and in the event of a default in complying with the conditions of a loan, or the terms of an agreement, demand may be at once made for repayment. The Government department is the judge of whether prices are reasonable and whether the distribution of products is equitable and it claims to supervise any contracts made with foreign manufacturers. Inspectors have the right to examine all books of account and to demand full returns of all products manufactured.

The burden of State assistance is onerous enough to make dye manufacturers avoid State help and to make those who have accepted it look forward to the day when they shall be able to pay the State partner out of the business.

REQUIREMENTS OF STATE AID

In applying for help these are the points on which information must be given:

"1. The group of colors and approximate annual quantity of each to be made.

"2. The estimated time in which the output can be attained.

"3. The estimated expenditure wholly or mainly upon the specific colors.

"4. Any expenditures already incurred.

"5. The estimated annual depreciation of the plant in operation.

"6. Balance sheets from and including 1914.

"7. The number of scientific and technical staff, their qualification and employments; particulars of the laboratory and scientific equipment, and of any special provision made for technical research.

"8. The production of dyes and intermediates for twelve months ending September, 1918."

Luster Finish

Since it is generally considered that the steaming process produces the luster on goods, it would seem to follow that any lack of luster must be due to a defect in the steaming. But there are other things equally as important as the steaming to insure the best results in a steam luster finish. The process of napping or gigging to secure a suitable nap is important. This insures a perfect parallelism of the fibers upon the surface of the cloth and the steaming process serves to make this parallelism permanent, which has more to do with insuring a luster than any effect upon the stock or the individual fiber. As an illustration of the value of a well laid nap, brush up the fibers on a silk hat and see how quickly the shine disappears, despite the fact that the silk fibers are the most lustrous of all textiles.

Many Surprises in Men's Wear Year of 1918

Spring, 1919, Season Obliterated—Manipulated Fabrics the Sensation of Civilian Goods Market

WAR, workless days and influenza furnished a combination which made the year 1918 the most remarkable men's wear year in the memory of the oldest merchant connected with the industry. This trio of major influences did not produce a single effect, in any sense. Workless days and influenza were impeding factors; war was both stimulative and repressive. It insured a prosperous year of its kind, but it shot normal business to pieces. Seasons were not observed and certain mills made no attempt to operate openly for the market, a few of them not being represented in announced lines for two years, while sales and deliveries by others became almost negligible. There were withdrawals of lines and withdrawals of prices. Events governed this surprising year—not the Government, dollars, seasons, men or fabrics.

EYE SINGLE TO ONE PURPOSE

Naturally under such weighty influences, there was no fabric direction to the market, in the ordinary sense of consumer's demand. But there was one specific direction, and only one—that was in producing O. D. meltons, serges and shirting flannels for the army, flannels and serges for the navy. The yardage required ran so far into the millions that every ordinary market consideration went by the board. Just one purpose guided—that was to win the war. The war was won. As every one knows, it collapsed—not altogether without warning, but at any rate with great suddenness, November 11. From that time until the end of the year the market groped for a new start under handicaps too many and recent to receive full justice in contemporary analysis and leaving the current year to fall heir to these burdens.

AWAITING GOVERNMENT'S HAND

When the year opened the previous year's orders by the Government were already a preponderating influence. The Government's emergency buying threatened civil shortages. Buyers were engaged in snapping up everything in sight in civilian lines, and the largest inquiry showed itself strongly for goods of intrinsic value. Buyers were pushed on by the feeling that a government commandeering of mills was inevitable. While this did not come to pass in April, as announced in a part of the press, production was virtually taken into control in succeeding months through the distribution of large war contracts and Government ownership of wool. Mill operations came virtually under the direction of the Government, and, as the one big and most favored buyer, Uncle Sam dominated the market.

ONLY SHREDS OF A MARKET

In this situation there remained for normal business only the crumbs—perhaps shreds would be more exact. Consequently the year's story of the primary market is altogether one of general commercial diplomacies and policies; season's, overcoatings, suitings, trouserings, the ordinary reviewable matters of a normal year, rate mostly as side issues. Merchandising developments, variations in demand and supply, were subjected to measurement only by the yardstick of war. Constantly the tendency ran to over-demand and under-supply. This tendency ruled from raw material to finished product, and, while it was not without warrant, in the majority of instances it worked out to supreme miscalculations in every department of the market, bringing every factor from producer to consumer to a stalled position in the two closing months of the year.

FALL ORDERS NARROWED

Delayed openings of fall, 1918, overcoatings and suitings in January and February disclosed very clearly the narrowed margin of operations. One-fifth to one-sixth of a normal line was all that would be shown, and a line would be opened but a day or two before it was declared sold up and withdrawn. Buyers booked their orders just as heavily as they would be permitted to do, and the usual understanding was that deliveries would be subject to delay. No common rule, apparently, could be arrived at to govern all cases, and special arrangements were of necessity made by agreement. Sellers allotted goods as they came through in delivery months.

ARTIFICIAL ATMOSPHERE

An artificial air, hanging over the market in the early months, continued through the year and was unabated until the breakup in November. Buyers obtaining a piece or two at a time considered themselves fortunate. Sellers held it inadvisable to sell far ahead in the constant state of uncertainty occasioned by the necessities of military secrecy, and they were unable to gauge what the Government would want. The Government itself hardly knew what it would want. All the time it was building, building an armed force on land and sea that leaped from draft to draft by the millions. When "force without stint or limit" was declared the whole industry from one end to the other speedily placed its major resources on the output of wool and worsted suitings and overcoatings for soldiers and sailors.

SURPRISE NO. 1—TAKING OVER WOOL

Under the enormous and growing demands of the Government, commandeering would have been inevitable had it not been anticipated by the manufacturers, who, rising splendidly and patriotically to the occasion, voluntarily placed machinery and raw materials entirely at the Government's disposal. And there is a well-defined belief, too, that officially fixed prices in the goods market were avoided as one result of this move.

The sharp turns and surprises of the year began when the Government, in April, accepted the proposal of the wool trade and took over imported and domestic wools and the 1918 wool clip. The greatest surprise in this year of surprises, as one seller puts it, came at this particular point when the Government, after refusing the offer of wool control voluntarily tendered in November of the preceding year, completely reversed this attitude, assumed control and began exercising its jurisdiction. One step after another in this process dragged through the summer months. Almost immediately deliveries on goods owing began to lag further behind, and such orders as were booked in January and February, when wool was free, were filled only on allotment and with delay. Of duplicate business there was not a ghost of a chance; clothiers were reduced to a basis of taking what they could get, which was not very much at the most, and governed largely by the favors of intimate relations.

In such a state of affairs advanced prices were natural in offering and acceptance. Thus, it follows, that there have been voices raised in criticism of the exactions of this period—some that are not yet stilled. Yet, to the credit of selling agents and manufacturers, it is to be said that they resisted the importunities of friends of long standing against impairment of their lines by adulterating the fabric. Many thousands of dollars' worth of business were declined that could have been booked, and in a considerable likelihood delivered, that was running around the market begging to be taken. Much stock that came off surplus machinery, made with odd wools, has since been severely criticised, but it was joyfully taken at net cash under a general belief that war would continue another year or longer.

WOOL FOUNTAIN DRIES UP

In this earlier period the fountain of wool goods dried up much earlier than worsted suitings. This was due to the circumstance that the Government in its mounting program of wool absorption moved more slowly in taking on a high percentage of worsted machinery. There is a somewhat similar explanation of the longer lease of life shown by quality suitings and other goods which maintained representation in the market, even to the signing of the armistice.

This explanation is that the Government ran out of medium wools for uniform cloth, with its program increasing constantly, and it was a matter of several weeks before finer wools, as well as lower grade ones, were turned to Government uses. At all times surplus production, through inequalities in mill holdings of wool at a time they were optional as to use in civilian looms, to a greater or less degree, developed allotted goods of this better order of merit, which were absorbed as a sponge absorbs water and generally with appreciation. Coarse all-wool cheviots survived to the last, and wool-faced, manipulated fabrics abounded.

The Government also found it necessary to insist on a program of conservation a little later. By this time the saving of an eighth of a yard on each suit and a quarter of a yard of cloth on each overcoat was an ingrained habit. Government suggestion, on account of imports of wool being interfered with by the scarcity of ships and U-boat warfare, turned to cloth construction directly. The Government decreed that it was going to need every ounce of virgin wool it owned—and that was all of it there was in the country—and it therefore suggested the use of reworked wool and cotton for the making of civilian fabrics. This suggestion was very reluctantly adopted and it was only partially accepted in leading quarters of the industry.

SURPRISE NO. 2—MANIPULATIONS

This policy brought the second great surprise of the year, however, for the resultant fabrics made the only spring 1919 selling feature in the goods market. There was not a single formal opening on virgin wool fabrics in the spring 1919 season, and thus the year 1918 passed with a market record of one kind that it has never had before and small prospect of enduring again. The surprising thing about it was that big clothiers under the pressure of this situation, who had never done so before, accepted manipulated fabrics. Later, attempts to avoid the consequences of this deviation furnish a special chapter in the period of cancellations which returned to plague selling agents and manufacturers late in November, and of course, the final chapter in the consumer end remains to the next few months of absorption of the current year.

In regard to this big surprise the TEXTILE WORLD JOURNAL, in its contemporaneous account of conditions, August 17, said:

"The course of production has been amply defined and little hope remains for the obtaining of all wool yardages.

DON'T UNDERSTAND RETREAT

"Clothiers' representatives do not seem to understand orders to fall back any better than the boys on the American front near Chateau-Thierry, as the news of a classic attack has been told and retold. They seem to want to advance on lines of all-cotton and cotton worsteds as if they were an entrenched enemy. They came last week and they came again this week. What little there was to be viewed they saw, and, according to characteristic and repeated expressions, they were not a bit pleased, and no whit appeased. If it depended on current offerings, the clothier would be in a bad way to arrange a line of spring goods. However, a certain confidence among buyers would support the War Industries Board's contention that it will be unnecessary for the mills to supply another yard of cloth to enable clothiers to make out a representative line. More apprehensive buyers operate, however, as if it were as equally true of fabrics, as it is of raw wool, that the materials are unequally distributed (held). Factors in the trade are inclined to note elements of uneven distribution, although it is difficult to make holdings conform to a more equal condition unless they obtain more information of a specific character."

AUGUST CRITICAL MONTH

From a merchandising standpoint, August contained the most critical aspects of the closing year of the great war. The hunger of clothiers for goods reached its climax in this period. As a sample of the extreme to which manufacturers went in the endeavor to conserve wool, an all-cotton worsted at $2 a yard made a very sightly fabric in light gray shades, said to be a most successful imitation of a fancy worsted.

Lines of three-quarter goods, on which

pre-war prices were as low as 17 cents a yard, were distributed at 75 cents to $1.25 and up, a yard.

The cancellation wave that made its appearance in the primary market late in the year came with particular harshness on so-called "cheap goods." It was as clearly a case of "buy and repent" as has been presented in the goods market in many a long year. Manufacturers entered into this business with the same ideas of patriotism and carrying on that actuated other innovations and abstentions. Others were so fortunate as to allow their reluctance to accept adulterations sway their action, deferred or took other courses, and so escaped.

APPRECIATION OF STOCK GOODS

This swing of demand to manipulated fabrics showing a wooly surface, or without that, effected a corresponding appreciation of stock wool and worsted goods which, as asserted by the Government authorities, outlasted the war. As these pieces passed out of the hands of selling agents early in the year, with very few exceptions, records of values are uncertain and of little comparative worth. The levels of the fall 1918 selling season were seriously disturbed after April by the course of events and the exact high-water mark of war prices in the primary market is exceedingly blurry. One thing, however, is certain—prices went up steadily. Information of a reliable nature establishes the movement of a certain serge suiting from $2 to $2.60; an overcoating from $4.50 to $5.50; another overcoating from $3.37½ to $3.50. No style led the market as a fabric, and it would be far from equitable to particularize in the sense either as a criterion of demand or as a price basis. The price career of one or two is, however, illuminating and affords a basis of estimate as record. These are accordingly instanced: A 12 oz. staple worsted suiting sold in January, 1917, at $1.75 a yard. It opened in January, 1918, at $3.15 a yard, advanced to $3.30 in February, $3.32½ in April, to $3.45 in June, to $3.52 in July and in August was withdrawn from the market. The same 16 oz. staple worsted suiting opened in January, 1917, at $2.12½ and in January, 1918, at $4.02½, advanced in February to $4.15, in April to $4.27½, in June to $4.40, in July to $4.45 and in August was withdrawn. Fancier prices than these, of record, belong more properly in wholesale circles. Here quotations of $9.62 and $10.30 are known and there may be cases where even higher prices have obtained for all-wool constructions specially desired. Blue serges in 9, 10, 11, 11½ and 12½ oz. weights, distributed late in May, by allotment, in small quantities, were valued at $3.37¼, $3.75 and $3.87½ a yard.

THE COURSE OF OLIVE DRABS

Another August surprise was the resumption of open bidding in the Quartermaster's Department. In the first twelve months of the war contractors as well as seekers of contracts sickened of emergency awards and cost plus contracts. In March the weights of cloth had been increased, and reworked wool content enlarged. In the new specifications the 16 oz. suiting was superseded by 20 oz. suitings and overcoatings were made 32 oz. weight. There is a story current that General Pershing really caused the raising of the weights, finding that the doughboys nearly froze in a climate more rigorous than America, during the first winter in the field in the regular army 16 oz. olive drab, and that the purchase of 2,000,000 uniforms in England was made to provide for the army until the heavier weight uniforms arrived.

WAR CONTRACT PRICES

Until the open bidding, beginning August 12, established cost averages publicly, the prices current at which it was understood the bulk of emergency orders were placed in 20 oz. O. D. Melton suitings were $3.90-$4.10, and overcoatings $3.75 respectively. The maximum on O. D. Melton awards to November was $4.25. Before April overcoatings were contracted for around $3.50 a yard. In August offerings the prices ran: All worsted, $4.13 to $4.50; worsted warp wool filling, $3.95 to $4.30; all wool, $3.80 to $3.90. In November the bidding was lower in view of the lack of wools for civilian use and cheaper grades being introduced into the specifications and was: All worsted, average $4.08 to $4.15, low $3.98; worsted warp, wool filling average, $3.80 to $3.92, low $3.62; all wool, average $3.75 to $3.85. Overcoatings centered around $3.50, ranging also 15 to 20 cents below that figure, compared to the August range of $3.95 to $4.05. As peace drew near, no contracts were placed at the November figures. Selling agents, after being given official recognition, kept paths well worn to the Quartermaster's office in East Sixteenth street throughout the summer, and it is understood that by decision they participated in the returns from Government contracts in lieu of civilian losses. So it is only a fair statement that army outfitting bulked the largest items in primary market affairs connected with men's wear in 1918.

MINOR SURPRISES

Among minor surprises there remain for consideration principally the heatless week and workless Mondays in January and February. This stoppage of manufacturing was of serious import and effect, and, combined with congested railroads in the early part of the year, will not soon be forgotten by any one in the woolen and worsted industry. In the fall there came the visitation of the Spanish influenza epidemic, which, in October, frequently caused shutdowns of 40 to 60 per cent. of operating capacity. The four weeks preceding Nov. 9 were therefore not heavily productive weeks, and when it so fell that this particular period became the adjustment gauge of production for the balance of acceptable army fabrics, a serious situation from the outset confronted the primary steps of reconstruction.

BEGINNINGS OF RECONSTRUCTION

The closing month of the year found the selling market hampered by cancellations of what seemed to buyers high-priced goods on orders entered quietly in the course of the year, subject to mill conditions and other contingencies. The sudden closing of hostilities—the final surprise of a surprising year—caused the Government to hasten the termination of large orders. A program of 23,000,000 yards of meltons and overcoatings, intended for production the first quarter of the year—was abandoned in November, soon after the bids were opened. With the prospective release of machinery at an early date, cancellations of delayed goods began pouring in and in the efforts to re-establish a market quickly, the American Woolen Company auction and price reductions on spring goods by at least two other large factors were noted. The auction set afloat a scant 10,000 pieces of suitings and overcoatings at levels between the pre-war and 1918 opening levels, although it was considered in general effect as neither helping nor hindering the general market in any exceptional way.

As a key to the firmness displayed in this auction experiment, it may be mentioned that 3192, the popular Fulton serge, brought $2.60. Its opening price in August, 1917, for spring, 1918, business was $2.92½, and at the fall 1918 opening the price was $3.25 per yard. With appropriate allowance made for the passage of the years and the differences there may be constructively in the same number fabric from year to year, it is interesting also to note that 3192 opened for spring business 1909 at $1.15, spring 1910, $1.50, and spring 1911, $1.30 the yard.

Inventory-taking occupied chief attention the remaining portion of the month and the general outlook is declared by most prominent factors to be in every way rosy. The difficulties of declining prices confront the market, but in every other respect there is nothing but optimism for its ultimate reaction to an exceedingly healthy and busy state. Depleted reserves, a world demand for fabrics and the United States itself possibly 50 per cent. understocked, are the foundations on which selling agents expect to build another prosperous year.

Dress Goods Year Disappointing

Goods Surplus Existed at Close Despite Clean Sweep in the Market in the Early Months of 1918

VERY little of a normal market in dress goods existed in the past year. There was an amount of spring duplicate business carried over from the selling months of 1917, but the opening weeks of the year soon filled with fears of a shortage of fabrics. No well-defined direction existed from the fact that the growing complexity of war prevented it. Fabric direction never made an appearance the whole year long, for the simple reason that the market speedily ran down to a situation absolutely devoid of selection. "Take what you can get" prevailed from February to December. Naturally, profiteering scandals, the only well-defined feature of the year, came soon enough, but they were concerned mainly with outlet factors, and disturbing only as such.

In January it was conceded that fall openings would be late. Buyers were coming to sellers in the primary market hat in hand. Emergency calls for Army goods and blankets had narrowed operations to the point where cloakings were sought by buyers in the men's wear field. Sellers were held down to an allotment system, but in spite of the brakes and checks applied, and others which Governmental needs imposed, a goodly volume of merchandise came in and passed on out of first hands. In January there was very little to obtain. Serges led in popularity, with poplins and velours in close order following. Heatless Mondays applied by the Government served to agitate the market still further.

SELLING DEMORALIZED

Spot deliveries for spring began to command a premium, and from February on all the aspects of normal merchandising disappeared. There was no fall 1918 season to speak of, and spring 1919 season dared not lift its head until December. As a result, the crowding of five months' work into one still occupies dress goods factors at this writing. The spring 1919 season is so near absolute zero in its place on the market calendar, that to all intents and purposes it may be dropped out of the record of 1918.

The dress goods mills maintained a special position in the industry throughout the year, and so, in diverted interests mainly, the ordinary considerations of a successful year are manifest. Manufacturers, commission merchants and selling agents alike are glad to reach the year's end because it imposed so many requirements entirely foreign to usual business interests. Much pleasure is taken in having gone through the year without disaster. Dullness reigned universally in the offices of selling organizations, for whom war's calls and war work filled in time.

BUYERS HUNGRY FOR GOODS

Failure to open many lines and the prompt withdrawal of such as were shown in the early months of the year served only to whet the hunger of buyers of all classes. They absorbed fall goods, spring goods, luster goods, worsted goods, corporation goods, Government rejections, and bought heavily of substitutes. Lines up to $2 a yard booked a large initial business, and closed up before there was time to file duplicates. From $3 to $4 a large yardage was booked, and when selling agents saw it would be fatal to sell too far ahead, the market closed up like a steel trap. It was practically sold up before the Government took complete charge of wool in April. From that time on it was one continuous holiday in selling offices.

In April, May and June the gradual slackening of deliveries brought the market down to its toughest period of the year. Only steps to bring a Government investigation of profiteering brought speculative transfers going on steadily in second hands to a close. From three to a dozen changes of hands are recorded in selling agencies on the same piece of goods. Rising prices on the law of limited supply and insatiate demand continued throughout this period. In July and August the holders of goods receded in the asking prices, and the sensation was all over long before the eventful break in the war came to clear the atmosphere and give the primary market a slight chance to work its way back toward a normal basis.

LUSTER GOODS SHUT OFF

About the middle of June the demand for luster goods began to show a rise. But after a period in which mohair rose under this influence, the Government declared the exercise of its option on mohair, and this avenue of development was also shut off. Any special fabric had small chance anywhere in the market of 1918, but there was an attraction in any direction which gave hopes of increasing the now decisively limited dress goods stocks. All through the spring months the serious aspects of a long-continued war urged buyers on to bid up and absorb any class of offering. Though specially advised to stay away from New York, buyers came on from as far away as the Pacific Coast, in season and out of season. They would buy for fall, 1918, and wanted to book a duplicate of the order for fall, 1919.

Selling agents, before the year had gone very far, were severely put to it to find goods for the Government. The Government took up its own needs direct with the mills, and, as a market

buyer, in due time, placed the Red Cross in the same position as itself in the preference for supplies. Civilian purchasers and other war work factors saw themselves pushed further into the background. There was nothing to do but submit; nowhere to go, but to shoulder a gun yourself; and gradually it was this, or its equivalent, for those connected with selling organizations, save for a few who stayed on guard as office-keepers.

DULLNESS AND CHAOS

War work demand gave the single direction to fabrics encountered in this peculiar merchandising year. Serges in tans, blues and grays for uniforms for women in war work piled up a yardage which commanded prices at an indisputable advance over 1917 figures. Few novelties could be attempted, and few could be obtained, after buyers had swept the market bare. In lieu of spring lines, factors produced minor amounts on special orders from odd lots of wool and yarns, in the flush of what would have been the spring season. Otherwise the entire dependency of the civilian population was transferred to substitute fabrics, leaving dress goods machinery free to operate on 9½ ounce O. D. shirtings and olive drab blankets principally.

As though to add a final blow to a market which had been beset by a multitude of disturbing and depressing influences, it became clearly evident by midsummer that wool was not to be provided for dress goods mills to make up into civilian fabrics. This put a damper on the production of spring lines. One manipulated storm serge was the sole showing by one big mill agent. Dress goods factors at once became more active with Government constructions. Openings were given up and the spring season once and for all went by the board.

NOTHING TO BUY

The week beginning July 15 found jobbing buyers in the market wishing to operate and unable to buy a yard of goods, on a basis of new business, from one end of the city to the other. Deep feelings were entertained against so-called profiteering and a final effort to get Washington interested came to little result. Stock goods and corporation lines were sole possibilities. Factors were inclined merely to check these out, a few pieces at a time, to their long-standing customers, at advances that were often imposed in a struggle to prevent exhaustion of reserves of goods, in the belief that 1920 would be an absolutely barren year. The distributors felt that it was best to let them go around as far as they would, and another year the sole prospect would be standardized cloth to be limited by the Government and constructed of cotton or whatever the Government would allow to be applied to that purpose.

ARTIFICIAL SCARCITY

Toward the end of August suitings were very scarce and fabrics designed to take their place moving indifferently. Silvertones in cotton warp effects commanded considerable attention. Cotton warp suitings sold up to $2.50 a yard. Demand for homespuns existed, but the difficulty of securing stock to make a presentable fabric worked against the production of many lines. All available stocks considered, it was generally admitted that if every piece of goods in all hands was accounted for the aggregate would be sufficient for the population of the country. It was found true in this market that fine goods outlasted other varieties. The garment trade absorbed excellent values at every opportunity, and while all recognized the extreme artificiality of conditions, the goods market never was in the grip of actual famine. Goods were very unequally distributed and no little criticism was heard that much of it was in irresponsible hands.

MIDSUMMER DIFFICULTIES

The sudden stoppage of contracts to produce 9½ ounce shirtings, the first week in July, was quite a disturbing factor to dress goods interests. If there had been an adequate visible wool supply, a large lightweight production would have been assured. But a tight rein was maintained on wool. At first there were hopes that a favorable amount would be set aside for civilian use, then hopes fell to a half supply, then a quarter, and finally zero. Attention of the selling agent and manufacturer was directed instead to the necessity of producing more war fabrics, and therefore turned especially to the competitive bidding on suitings, puttees, jerkin cloth and overcoatings. After the August bidding, another exceedingly lean period came in sight. Factors first labored to impress the Government that, emergency rush being over, civilian production should be given a chance. There came a determination instead to produce army fabrics in the first quarter of 1919 and activities in October were all pointed in this direction, bids were submitted again for shirtings, suitings, puttees, jerkin cloth — in which dress goods mills participated actively—when the war broke up.

DEMORALIZED TO YEAR'S END

Little could be accomplished the last two months of the year toward straightening out the market, though every effort was bent to this purpose. Efforts to bestir interest in broadcloths in early December, registered a distinct failure. A few years back, broadcloth showings in December never failed to arouse a certain interest and furnish stimulation. In the complicated situation existing at the close of 1918, however, price considerations could not be brought to a stable basis quickly enough to give an appreciable initial business. When recessions began price levels were uncertain and were found to have been rated 15 to 20 per cent. above spring, 1918, season levels.

In the closing months, too, a full recovery was prevented because the speculative transactions after the first hands in the spring and early summer still exercised a hampering effect. In all quarters, however, the coming months were hailed with joy. It was expected that readjustment will not be without its difficulties, but the dawn of peace certainly means activity. While 1918 was not a lean year, because it was filled with opportunities of a sort never before experienced, no one wants to see it repeated.

The sales of German interests in the mills at Passaic, N. J., was an important event to dress goods interests in the closing weeks of the year. As these matters were not completed by the Alien Property Custodian in December, the full force and effect of the ordinary production of these mills remain for estimation another year.

FACTOR OF DISAPPOINTMENT

Summing up the year a prominent factor estimates the year 1918 as one of disappointment. This, it is to be explained, refers particularly to the volume of business, as satisfactory profits show on what was accomplished. Assuming that the primary market was swept fairly clean in the early months, there were preparations for and opportunity of providing further until the edicts came forth which suppressed the use of wool to so large an extent, and so such merchandise as came through from the mills from time to time would possibly fall to a fraction with a numerator of one and a denominator of five to ten, according to the amount of war work conducted by a factor. Yet, when 1918 closed, there was a surplus of merchandise, continued the informant who holds the view that disappointment ruled the year.

"A surplus? Where? Not in first hands!" exclaimed the hearer, doubtingly.

"No matter where. It is somewhere, that is sure. When your goods are offered all round every day it is pretty good evidence that the year comes out with a surplus of merchandise and this, too, when everybody expected a shortage. We've been hearing it for years—a shortage—but, you see, not even in a war year does it happen."

With almost two months of the year following the armistice, conversion efforts showed little effect up to the close of the year. Yet there is abundant optimism among selling agents that there will be an extensive volume of business after the reconstruction period. Generally, it was at first thought that the turn of business could be made in ninety days. But in the very last days of the year they were gradually coming to an opinion that so little had been accomplished up to the holidays toward the big task, that the period would be longer. Consequently, of the new year, opinion rather widely agrees that the last six months should be better than the first six months.

Waste Elimination in War and Peace

(*Continued from page* 131)

think that that will last for a long time. I think that the manufacturer is going to watch his line. They had a lesson which is going to live for a long time and I think it will be a long time before they go back. A New Zealand woolen manufacturer was over here recently and said he had just been through a number of the largest English mills. For instance, in one mill they had two looms making nothing but samples. When their men went to London with the spring line and could not sell it they would make up another lot of new samples. They will not do this any more. That was a big element of cost and there was no question about it." Speaking of the work of the Commercial Economy Board later known as the Conservation Division, Mr. Shaw said:

BASIS OF CONSERVATION DIVISION

"This activity was essentially a war-making agency of the Government and its policies were based upon the war and the killing of the Huns. If there was any material or any labor or capital or any equipment needed for the Government the function of the Conservation Division was to get it. Nevertheless, we always tried to keep in mind that it was of prime importance to the Government that the business organizations should release these materials, this labor, and equipment with the least possible disturbance. Therefore, we developed the plan of cutting out the wasteful, needless, and non-essential uses of all of these vital resources and facilities, but we did not do it because we thought it was a good thing to do as a broad national business policy, but because we thought that certain of these practices were abuses. It was not because we thought a multiplicity of styles was an abuse of the trade but because we saw by cutting them down that we could simplify the manufacture, which meant to release labor, cut down the amount of material used, get simplified production which tied up capital which meant loss of adolescence and sometimes actual deterioration of the material. The whole process was a process of simplification because this complicated system of production and distribution unquestionably brings waste with it.

ELIMINATING NORMAL WASTE

"Now war is waste. This expenditure of human labor, capital, material and equipment is waste. We were trying to offset these great wasteful processes by cutting out the normal waste of business and the excessive civilian consumption. We had the waste of war which we do not normally have under the needs of peace. The very transaction of business and the very living of our lives becomes an extravagant process. We cannot stand the wastefulness that creeps into peace times and the wastefulness of war at the same time. Therefore, if war becomes the dominant interest any excess of production over and above that which is strictly essential must go into war. Therefore, we cut out of business the wasteful practices in order that the saving could be diverted to still greater essentials for the conduct of the war. In times of peace the normal waste of business is essentially along the lines of peace and prosperity and that is what we were after. We had no idea of building up better business practices. We were after labor, material, capital and equipment to kill the Huns. We wanted to release labor so that the men would be available to kill the Huns. We wanted to release capital by cutting down stocks so that the material could be used to kill Huns. However, out of the necessity for doing these things there have come several helpful results. It has been very clearly demonstrated by our experience in all the lines that we have worked with, and there were over 250, that to simplify production by decreasing styles, varieties, etc., reduces the amount of labor required to turn out a given quantity of the product. That is a demonstrated fact. Whether or not it is a good thing to do is another matter taking into full consideration all the facts. Nevertheless, that is what we learned out of these experiences, if you reduce the number of types and varieties you simplify production and simplify the cost.

"It has been clearly demonstrated if you reduce the number of varieties that you can reduce the stocks on hand with the manufacturer and retailer and therefore release capital. In other words, certain basic considerations have been proven during the war and so clear are they to a large proportion of business that this knowledge will be an inhibition on extravagant business for a number of years. Many a big manufacturer has seen the policy of extending his variety in an effort to increase his volume has been a wasteful and expensive policy.

EFFECT UPON PEACE ERA

"I do not believe that I would want the Government to create a body with power that we had in the time of war to control in time of peace, the operation of business. Therefore, after some years whatever we have done will disappear, but for a considerable period,

THE CLEVELAND WORSTED MILLS CO.

CLEVELAND, OHIO

GEO. H. HODGSON, *Vice-President and General Manager*

¶ Manufacturers of Fine Worsted Fabrics for Ladies' and Gentlemen's Wear.

¶ Uniform Cloths a Specialty.

¶ Also Makers of the Famous Red Star Yarns for Weaving and Knitting.

LOOK AT THE CLOTH!

OPERATING

The Cleveland Worsted Mills Co., Cleveland, O.
The Annevar Dyeing & Finishing Works, Ravenna, O.
Redfern Worsted Mills, Ravenna, O.
Lake Hodgson Water Works, Portage County, O.
Ferncliff Worsted Mills, Jamestown, N. Y.
Fern Rock Woolen Mills, Philadelphia, Pa.
Monohassett Woolen Mills, Providence, R. I.
Salisbury Worsted Mill, Camden, N. J.

Odsonia Worsted Mills, Jamestown, N. Y.
Rowland Worsted Mills, Philadelphia, Pa.
The Langford Worsted Mills, Providence, R. I.
The Vulcan Combing Works, Philadelphia, Pa.

and it is more true in England than in this country, and also true in Germany, old policies of increasing varieties and styles to increase volume with the idea of increasing profits will be dead, and the people who have been closest to the head and understand it will have a tendency to contract the varieties and types and not expand them. The expansion of varieties and types complicates manufacture, increases stock on hand, increases capital tied up, increases equipment required to do a given volume of business and wastes material. There is no question about it."

DID NOT FAVOR "NON-ESSENTIALS"

It was obvious at the beginning of the war that an enormous fund of resources would have to be released from our ordinary commercial and industrial activities in order to provide for war needs, and the fundamental object of the Conservation Division of the War Industries Board was to determine by careful investigation what less essential uses of labor, material, equipment, and capital could be dispensed with in time of war. The division early came to the conclusion that at least in the first stages of business readjustment it would be far more practical to eliminate the watchful or unnecessary uses of labor, material, equipment, and capital in all kinds of business rather than to have certain businesses classed as non-essentials. Although it was realized that in some cases a shortage of raw material or transportation might become so severe as to call for drastic action, it appeared that as a rule each industry and trade could eliminate enough less essential uses of our resources and facilities to provide for the Government's requirements.

By the application of this plan wherever possible an industry could maintain at least the nucleus of its organization, retain its essential trade connections, and protect valuable business rights such as trade-marks, which would have been sacrificed by a categorical classification stigmatizing a particular industry as non-essential and shutting it down entirely. This plan of conservation through industrial and commercial economies, furthermore, helped to prevent shocks to the country's credit structure and to avoid severe and sudden labor dislocations, such as inevitably occur when conditions become so acute that an entire industry must be closed. Proceeding upon this plan, the Conservation Division tried to foresee conditions that needed to be met in order to deal with them forehandedly, so that there would be as little injury as possible to business and to the people of the country.

COOPERATION WITH THE TRADE

The Division undertook to adjust its plans according to the needs of the Government for essential materials, for manufacturing capacity, and for shipping space, and also according to the essential requirements of the civilian population, readjusting its program as conditions changed. In its regular course of procedure with each subject the Division undertook to make a careful preliminary investigation securing all the information available from other Government departments, to hold conferences with representatives of the trade, to submit the important questions to every firm in the business for their advice, and then to make such supplementary inquiries as seemed necessary to clear up doubtful points. After its recommendations had been formulated and approved they were sent out to all industries and trades affected. Plans were then worked out for securing full cooperation. Although the Division, of course, had no power to compel observance of its recommendations by process of law, it was able to secure the desired results through voluntary cooperation of business men. The success of this plan was due in large measure to the policy of consulting in advance all who were interested in the proposed plans, including not only manufacturers but also wholesalers and retailers. By bringing these business men together to carry out the cooperative plans of readjustment the officials of the Division believe that the spirit of national unity was strengthened and the Government thereby aided in expediting the prosecution of the war.

The conservation of wool was a subject to which the Division gave a great deal of attention during the year. This was one of the most complicated problems with which the Division had to deal. Large quantities of wool were needed for equipping our fighting forces. More than one-half of the wool that we normally manufacture in this country, as is well known, is imported. Our wool-manufacturing capacity, furthermore, was limited. Under these circumstances it was early apparent to the Division that economy in the use of wool would be necessary. In this connection the trade was brought to Washington many times, questionnaires were sent out, and everything was done by the Division that seemed plausible until after the wool situation was taken over by another division of the War Industries Board at which time an expert of the Conservation Division was assigned to help work out the problems which came up from time to time and until after the armistice was signed.

Supplying the Navy with Textiles

(*Continued from page* 135)

The theory on which that system of distribution was founded was simply the fact that coal in another battleship's bunkers would do her sister ship no good in case she happened to run out; and, continuing along the same line, it would serve no useful purpose to take on board a year's supply of yeast and but one month's supply of flour.

In distributing supplies and planning for replenishment, the Fleet Supply Officer was guided by how much the ships of smallest capacity could carry of needed supplies and always had another cargo on hand when the supplies on these smaller vessels gave out; likewise, instead of filling the other ships of larger capacity chock-a-block, just because they could carry a lot he recognized the wisdom of supplying their needs in fresh provisions only until another supply ship was scheduled to come up with the Fleet. By this carefully thought out system of distribution, the Battle Fleet on its long cruise was never without adequate supplies. However, this is only one little phase of distribution as applied to the Fleet at a time when the Navy was but one-fifth of its present size and has only an indirect bearing on the subject of distribution as it concerns the present Navy.

NEW NAVY PROBLEMS

The rapid expansion of the Navy to its immense war-strength of nearly 500,000 men thrust new problems of distribution on the Supply Corps and its Headquarters Staff for which there was little or no precedent to assist in the solution.

The Navy's activities were increased a thousand fold during the war and its ships and men were scattered on the seven seas. In addition to this there were the foreign shore bases to be looked out for, our air patrols extending along the coast of England, Scotland, France, Belgium and Italy, and supplies had to reach even the most remote of these bases as well as our submarine chasers on isolated patrol stations with assured regularity.

The fact that there was an acknowledged scarcity in many materials essential to the proper operation of the Navy overseas and at home made it particularly incumbent for the authorities in Washington to buy only in quantities that would be sufficient for the time. In order to do this effectually it meant that all ships and stations must share exactly alike in the distribution of such supplies. This could be accomplished only through a centralized distributing system able to control deliveries to outlying stations and to vessels in home waters and overseas. Such a centralized system was already in good working order as a peace-time factor of preparedness. What used to be called the Provisions and Clothing Depot but is now known as the Fleet Supply Base at New York is the largest and most important unit of the centralized distributing system. At Norfolk and at Mare Island there are also established distributing stations but not quite as large as at New York. At these three points are kept the huge stocks of provisions and clothing required by the Fleet and the various training camps and stations.

NAVY IN MANUFACTURING BUSINESS

In addition to these three supply centers the Navy also has two big clothing factories, one at the Fleet Supply Base in New York and one at Charleston. At both of these places big stocks of clothing for the men are maintained. The New York factory regularly manufactures overcoats, blue caps, white hats, blue trousers, blue over-shirts, etc., for the sailors, while at Charleston the white uniforms and dungarees are manufactured, also nainsook underwear.

Both of these factories have greatly expanded to keep pace with the Navy's war requirements which they have been able to meet in a most acceptable manner despite the difficulty at times in obtaining adequate cloth and other raw materials.

The distribution of clothing manufactured at Charleston is not controlled there but at New York. The Fleet Supply Base through the Bureau of Supplies and Accounts exercises autocratic control over the distribution of every item of clothing and uniform for the entire enlisted personnel of the Navy; consequently, all requisitions for such supplies are primarily made on New York. All contracts for ready-made articles such as leggings, socks, etc., also require delivery to be made at New York. This is not only necessary in order to exercise proper control of distribution, but also that a uniform standard of inspection can be maintained for all clothing furnished to the men.

The inspection is necessarily rigid. Not only does an honest inspection protect the Government and the enlisted men, but it also places all competing contractors on a basis of exact equality when bidding for such business. For instance, if inspections were lax an unscrupulous contractor might bid low on leggings, for example, with the intention of furnishing inferior quality or workmanship and thus hope to get the contract. His honest competitor having bid on furnishing the identical articles in strict accordance with the specifications would accordingly be hopelessly outclassed.

In order that all of the eggs might not be carried in one basket, the policy was early established of requiring all yards and stations to keep normally on hand a six months' supply of clothing. This policy not only insured against a loss in event of fire at the main supply depot that might otherwise seriously embarrass the Navy, but also helped to solve the big question of storage at a place (New York) where it is both scarce and costly.

There are approximately sixteen stations including navy yards and training camps that are required to carry a six months' stock of clothing—the complements of these stations ranging all the way from sixteen hundred men at Hingham, Mass., to fifty thousand men (during the war) at Great Lakes. Stock cards are kept at these stations, and whenever they show that the stock is depleted to the low-limit level, a requisition is sent in to bring the stock back to the six months' basis.

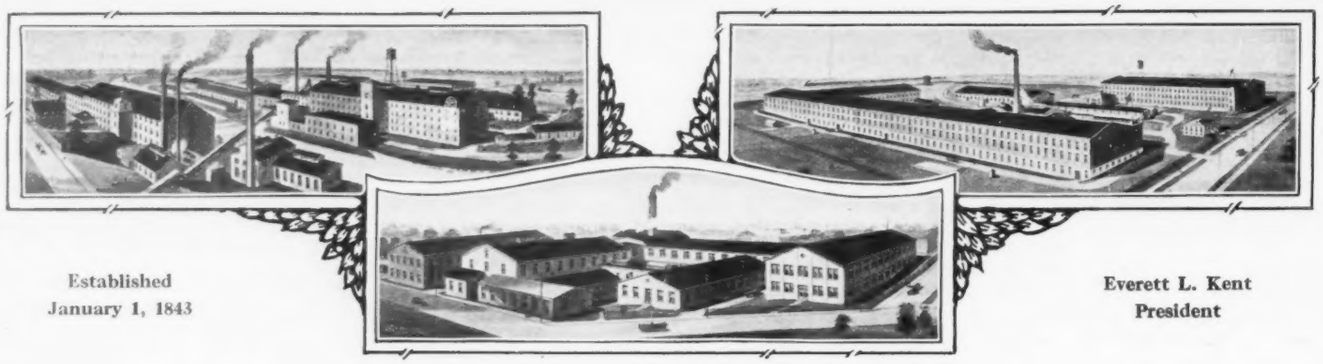
Virtually this same system applies to the fleet and to vessels acting singly or "on independent duty," to use the usual Navy phrase. Of course, the amount of clothing that the various vessels of the Navy can carry varies considerably according to the type. The submarine chasers carry little or no stocks, depending on their "tender" or mother ship, as it is generally referred to, for this and all other supplies except that where such boats are operating in a naval district off our own coast their supplies are carried on shore at so-called "section bases." On the other hand, our super-dreadnaughts can easily accommodate a six months' supply of clothing, and are consequently self-sufficient for long periods.

WHAT IS SIX MONTHS' SUPPLY?

The question of what constitutes a six months' supply of clothing is one that has received special attention. Unless it was known with some accuracy what number of trousers, for instance, a given number of men would require or wear out within a certain time all estimates as to what constitutes a six months' supply on any particular ship would practically represent the arbitrary and conflicting ideas of as many different supply officers, with the result that some would have a year or maybe even two years' supply of one item and but one month's supply of another.

A table was accordingly made up, based on actual issues in the Atlantic Fleet over a year or more, showing what the average annual issues are for all articles of clothing and uniforms for one man per year. This table was recently brought up to date based on actual war experience, and has been a big factor in enabling standard stocks to be maintained on all vessels and at all stations on a symmetrical basis and identical for all alike in proportion to the number of men attached to each.

These figures are very interesting, showing, for instance, that one thousand men required in one year eleven thousand pairs of cotton socks, nine hundred and thirty pairs of blue trousers, etc. As the men do not invariably buy all of their clothing and uniforms from the Government, these figures do not, therefore, represent the total actual number of these things that the men use, but only on an average what are furnished from Navy stocks.



Established
January 1, 1843

Everett L. Kent
President

UNION MILLS BURMONT MILLS BEDFORD MILLS ROCKBOURNE MILLS

RUNNYMEDE WORSTED MILLS

The Kent Manufacturing Co.

Manufacturers of

Woolen Goods

Blankets, Flannels, Indigo Blue Uniform Cloths and Kerseys,
Army and Navy Uniform Cloth, Cadet Cloth for
Postal Uniforms, Originators of Olive Drab
Uniform Cloth for United States Army.
Camp and Institution Blankets.

FRENCH SYSTEM

Worsted and
Worsted Merino **YARNS** For Weaving
and Knitting

SELL DIRECT

CLIFTON HEIGHTS :: :: PENNSYLVANIA

Textile Thrift in Salvage

(*Continued from page 132*)

master's Department of the army during the period from Jan. 1, 1918, under this plan reclaimed 17,789,592 articles, valued at over twenty million ($20,000,000) dollars.

"It is expected that the reproduction of raw and waste products from waste materials will in the future play an important part in the development of American export trade, offering American producers and commercial interests a better competitive chance with foreign rivals without in any way affecting or changing labor conditions by lowering the standards of the workers.

RISE IN PRIMARY VALUE

"The extent to which the habit of waste had seized upon American industry before the war is illustrated by the experience which followed the organization by the War Prison Labor and National Waste Reclamation Section, Labor Division of the War Industries Board, of a local reclamation council in a small city in Pennsylvania. Within a week after the council was organized approximately eighty tons of waste book stock paper was salvaged in that small community, and one of the local banks had returned to a nearby mill twenty-five tons of old books and waste paper that had accumulated in the course of a single year. One result of the waste paper reclamation work was to raise the price of this waste material to the householder and to create a live market for it.

"Before it was determined to transfer the section to the Department of Commerce as a permanent agency of that department a canvass of heads of departments and of leaders in industry and labor brought forth unanimous indorsement of the suggestion that the work be continued."

DETAILS NOT COMPLETED

Of particular interest to the textile industry are the estimates culled from the paragraphs of the official announcement of a permanent national salvage system, itemizing woolen rags at $75,000,000, cotton and wool waste at $100,000,000, and cotton linters at $50,000,000.

The details of the carbonization and final reclamation of so large an amount of woolen rags, for instance, still remains to be worked out. Louis Birkenstein, who was Chief of Salvage of the Department of Reclamation and Conservation of the War Department, has pointed out recently that organizing a systematic method for the collection and salvage of waste material in the United States is much the easier part of the task. The question of marketing these collections presents a far more difficult problem, and, should the vast scale of operations be realized as planned, expert services will be necessary in order to secure the best available markets. Market expansion of products should be also anticipated as the current absorption of re-worked materials, especially in the textile lines, would soon be overwhelmed. It is a splendid tribute to American enterprise and application, however, that dealers and manufacturers stand ready at all times to co-operate with this reclamation and salvage unit to assist it in processing and remarketing all such waste collected to the best advantage. Former President Taft gives an enthusiastic support to this gigantic reclamation project on the ground of its helping to meet the enormous deficits created by the war, using wastes thus in more intense form to offset the tremendous quantities of the world's ready-to-hand raw materials that were consumed and destroyed in the battle years.

INDUSTRY'S ECONOMIC VIEW

As to a distribution of the valuation in the industry, take the prices that were fair and current at the close of last year, viz., 15c. for mixed softs and 5c. for rough cloth, or 10c. a mean pound. For the purpose of an estimate, say the collections would grade out evenly in weights. Grant that the proportions stated are not the actual proportions met with in the trade because of its variations in seasons and in sources of supply. But, on the premises stated, the yearly increment would be 750,000,000 to 1,000,000,000 pounds of old woolen rags. However, if the War Industries Board estimates the recovered wealth in terms of market values of fully re-processed materials, which may be the case, the computation would be too high.

NEW MILLION DOLLAR CONCERNS

Whichever way it is taken, a large business expansion is nevertheless forecast in enterprises now operating, or new ones to be initiated. In woolen rags it would mean, for instance, at the Government estimate, 75 new $1,000,000 rag enterprises. By an even division, we might say, 25 in rag grading, 25 in shoddy making, 25 in cloth manufacture, each selling or processing 5,000,000 pounds a year. In cotton and wool waste it would mean 100 new businesses with an annual overturn of $1,000,000 each; while in cotton linters there appears also the equivalent of 50 new $1,000,000 concerns operating in that division of textile manufacture. Out of these preliminary estimates, therefore, there show up prospectively 225 new $1,000,000 a year factors added to the textile interests of this country. To a conservative mind this may be staggering, yet in this day of big commercial expansion nothing is impossible until it is tried at least.

GREAT EXPANSIONS NECESSARY

There is a story of the early days of re-worked wool in Great Britain—that a manufacturer who began making his cloth out of recovered fibers built his second mill before using his first pound of virgin wool. It is a good story to bear in mind in these days of salvage and reclamation. One problem of expansion simply follows another. On a basis of a consumption of 600,000,000 to 700,000,000 pounds annually of virgin wool in the industry, as it is now organized, the consumption of the proposed large addition to stocks of textile raw material becomes a problem requiring immediate attention. At the figure stated, the additions would more than double the amount of materials usually processed in a year, to say nothing of the fact that current organization would continue to supply the same amount of reclaimed wool that it has been supplying in past years. If the increment of salvaged textile materials means anything in the way of looking ahead, it means mill and trade expansions on a big scale; hundreds of new factories to be built, thousands of new machines to be installed and tens of thousands of employes to be added. As a corollary, new market outlets must be developed. These the changes of war may be bringing in sight. As has often been said, there are no limits on American enterprise and thrift, hence, textile factors who join co-operatively in the campaigns for saving wastes and re-processing them, undoubtedly have a large and lucrative field for additional profits to explore.

Financial Reconstruction

(*Continued from page 132*)

ever, the reconstruction period may bring, whether issued by our own Government, or by a Peace Finance Corporation, or by foreign governments or foreign corporations, it is certain that their successful absorption will depend upon the saving capacity of our people.

MUST CONTINUE HABITS OF THRIFT

I believe we cannot emphasize too strongly that the time has not yet come when our people, large or small, may relax their efforts to curtail unnecessary consumption, both for the sake of releasing for export the greatest possible quantities of goods, thereby stimulating our export industries, and for the purpose of accumulating funds available for investment. The slogan "don't stop saving food" would gain in scope and strength by abbreviating it into "don't stop saving." Our more than twenty-one million Liberty Bond holders must be trained to become permanent investors; thrift must become a national virtue, a priceless inheritance left to us by the war.

It is sincerely to be hoped that the people by saving and curtailment of unnecessary consumption and expenditures, and the business community by a program of wise moderation particularly dealing with non-essentials, and as long as this can be done without creating unemployment, will do their share in consolidating both our gold and investment strength, on which two factors our ability to secure our proper position in foreign lands and our power to act boldly and generously in dealing with other nations is largely predicated. Over-expansion of deposits and note-issues must not be permitted to tie up our reserves to such a degree as to interfere with our power to let gold go out freely.

A "WATERED" BALANCE SHEET

The world balance sheet has been "watered" by issuing war loans and currency, against things already consumed or of no permanent value, to an aggregate appraised to exceed the estimated pre-war wealth of England and Germany combined. The squeezing out of this water by gradual amortization of war loans and contraction of note issues will prove an important factor in re-establishing pre-war levels of prices.

POOLING OF GOLD HOLDINGS IMPROBABLE

I do not believe that the world has turned far enough into a family of communists seriously to consider the pooling by all countries of their holdings of gold. As long as nations have separate national budgets and obligations, they are likely to wish to retain a distinct ownership of their assets. The problems of reconstruction are immense and immediate; the new structure must be erected on the most solid foundation and built with material that is thoroughly tested and promptly and actually available.

Attention has been drawn to the preliminary steps taken by many European nations for the organization of banks designed to protect the foreign exchanges of the respective countries. But the conditions of these nations are not ours. Countries that are dependent upon the importation of goods and at the same time have to find means of annually remitting abroad large sums in payment of interest and amortization have a very real and serious problem on their hands, one from which, happily, we have reasons to hope to be immune, at least for some years to come.

THE THREE GREAT BANKING PARTNERS

In thinking of financial reconstruction and of the financial world of the future, do not too many amongst us have this one thought uppermost in their minds: is the United States hereafter going to be the leading financial country? In other words, are we going to take England's place as the foremost financial power? Do not these men forget that if England were to surrender her entire trade and banking to us, we should collapse, and that if we were to unload all our business on her, she would break down under the burden? The whole truth of the matter is, that we have both grown to be pillars supporting the same structure and that neither can fall or become weakened without bringing danger or disaster on the other. England, herself the owner of billions of foreign obligations, will remain the banking center of Europe; a world clearing house for goods and credits. I believe that her banks and ours will be found in close cooperation sharing the burdens in bond issues and credits, and relieving each other as the tide may swing from time to time.

Personally, I think it is finer and healthier for us not to think so much of the rank as of the responsibility of our position.

If I read aright the signs of the times, England and the United States, soon to be joined by France, allies of the past, will be partners rather than competitors in the future—partners not of a close corporation to the exclusion of others, it will be a partnership wide open for any respectable new associate wishing to enter. Or perhaps we might more properly term them joint trustees, with others, administering a great public trust. If there is to be immediate and intense competition between their peoples, it ought to be on this one and only ground: "who will be able to save most in order to be able to help most."

WILL NOT BE A HARD OR EXACTING CREDITOR

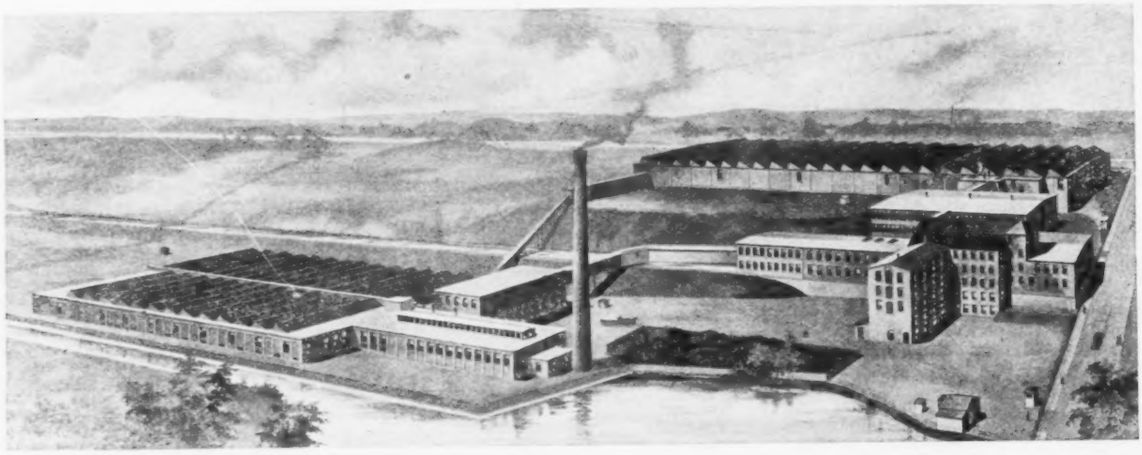
The ownership of no less than $8,000,000,000 of foreign government obligations (probably billions more before we are quite through) conveys to the Government of the United States the posession of a master key controlling the foreign exchange market for some years to come.

Nobody is wise enough to say to-day what the ultimate disposition of these foreign bond holdings will be. Some bonds may be actually paid off when due, others may have to be renewed by our Government, in other cases foreign governments, when their bonds mature, as a renewal operation may offer their own bonds for sale to the American investor (instead of to our Government).

We may assume with entire confidence that the United States is not going to be a hard and exacting creditor. While our Government may find that, as a matter of protection against unexpected economic or political developments, it may be advisable to keep a certain portion of our foreign loans in bonds of a reasonably short maturity, renewable from time to time, there cannot be any doubt that the decisions of any future administration concerning the ultimate liquidation or continuation of these debts will not be reached from mercenary or selfish motives, but that they will spring from considerations of the larger duties towards the world as a whole, and from minds fresh with memories of the sacred purposes for which these obligations were incurred.

DUNN WORSTED MILLS

WOONSOCKET, RHODE ISLAND



Fine Fancy Worsteds and Piece Dyes

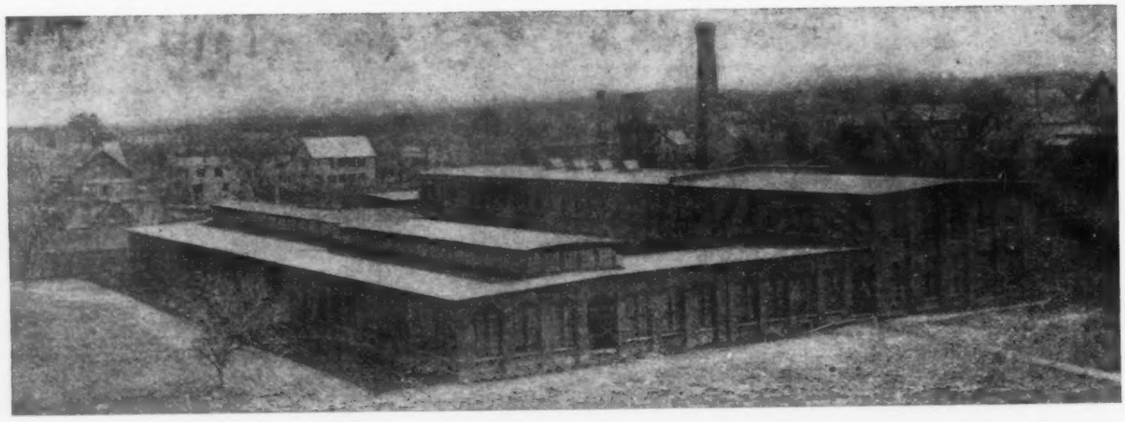
New York Office, 257 Fourth Avenue

BATTEY, TRULL & COMPANY - - - - Selling Agents

H. H. Chase, President A. N. Litch, Treasurer

Leominster Worsted Company

Leominster, Mass.



"LESTER" and "STANLEY" Worsteds

Sold by A. STERZELBACH & SONS CO., - - - 242 Fourth Avenue, New York

FANCY and PIECE DYE WORSTEDS

Sold by SAMUEL H. CRAWFORD & CO., - - - 25 Madison Avenue, New York

WORSTED CLOTHS for SHOE TOPS

Sold by O. E. HOUGH & CO., - - - - - 133 Essex St., Boston, Mass.

Woolen and Worsted Technical Section

Problems of Wool and Worsted Mills

Some War Changes May Become Permanent—Return of Initiative

By *a Superintendent*

IT is as yet premature to foretell with faithful tongue what the ultimate effects of the war will be on woolen and worsted mills; but it is in order to discuss the matter and weigh the opinions of those who are observant and do not allow significant signs to pass without taking due notice thereof.

We know that by the abnormal conditions of things in general during the past four years many changes have come about which, while not wholly desirable, were either absolutely necessary or were expedient to adopt, at least for the time being. An old saying teaches that necessity is the mother of invention, and it may develop that some of the innovations made through the force of circumstances are improvements over the methods departed from, and will be permanently retained subject to further progress. It is the purpose of the writer to discuss in this article some of these innovations or changes.

PROSPERITY IN WAR TIME

Probably every domestic woolen manufacturer will admit that since the beginning of the war, and especially from the time the United States became involved, business has been good and profitable. That this prosperity has not been confined to employers alone, but has extended to the employes, is too plainly apparent to require proof.

As a whole, all those engaged in the work of providing woolens and worsted for the common cause have been well united regardless of position, and have stood firmly for success in the fight for right over might. The natural result which may be expected from organization such as we have seen, where we have worked, fought and even died together is a better understanding among different classes who are supposed to be representative of capital and labor.

FEW NEW MILLS ORGANIZED

Although there has been an unprecedented demand for woolen goods during the war period, and many concerns have been overcrowded with work, yet there has been no boom in the forming of new organizations nor the erecting of new mills. Certainly the productive capacity has been greatly increased, but this was mainly effected by making additions to existing plants, and recalling mills in disuse back into service.

Several reasons can be offered as to why there have not been more new ventures launched. One is the high cost of erecting and equipping new mills during the war period; another is the difficulty in getting deliveries of machinery; and a third is the control exercised by the Government over new projects. Still another reason, and one that is not spoken of so frequently, is the feeling that the cause of prosperity was not a very healthy one, and it was not likely to be long lived, so that outlook for continued success was not bright enough to warrant such a large investment of capital as would be needed for the undertaking.

Large amounts of money have been expended in making additions to mills already established, and making improvements in machinery equipment in the interest of greater efficiency. There has also been a large expenditure in starting up old derelict mills to help out in meeting the insistent demand for goods.

It is noticed that more attention has been paid to the beautifying of mill properties, improving the appearance of buildings, and laying out the grounds in more attractive style; and these expenditures have been considerable in the aggregate.

BUSINESS RELATIONS SATISFACTORY

Notwithstanding restricted conditions in the raw stock markets, and the difficulty of procuring a sufficient supply of materials to fill orders taken, the business relations between makers of woolen goods and their customers have continued to be generally satisfactory, according to all reports. Producers of sale yarns have made fair deliveries to manufacturers of cloth; who in turn have striven to comply with the terms of contracts made with the Quartermaster's Department and buyers for the regular civilian trade. As goods ordered by the former authority were wanted for the most essential purpose, they have been made in preference to those ordered by the other class of buyers during the time of emergency.

So far as is publicly known, the woolen fabrics produced and delivered to representatives of the United States Government, have opened out well, and few serious complaints or rejections have been made; and we have yet to hear of any substantial manufacturing concern being involved in a business scandal. Those who have knowledge concerning the persons at the head of mill organizations expected no other story, and although as a matter of good business policy, Government inspectors have been engaged to act in a supervisory capacity, it is admitted that in general the mill executives have done their best to have the goods according to the specifications.

The prosperity of manufacturers has not been enjoyed to the same extent by their friends engaged at the other end of the trade in distributing that part of the product known as regular goods, or in other words, fabrics intended for civilian use. But this result was only by reason of consumers having to wear the khaki sort of clothing instead of the ordinary sort. Without regard to quality, the fabrics and styles of pattern supplied for the civilian trade have been as good, and produced as efficiently during war time as ever before, and this is confirmed by the fact that comparatively few complaints or rejections have been made.

NO SHORTAGE OF FABRICS

Narrowing the scope of discussion to include only woven so-called woolen fabrics, there has been no serious shortage among retailers during the year. We have not far to go for evidence to prove this. It is a matter of common knowledge that at least until the time of virtual peace, the clothing stores around us were well stocked with domestic goods, and no uncommon complaints have been heard about people being unable to get what they wanted.

Certainly prices have advanced, but the purchasing power has kept pace, hence there has been no hardship in that respect. It is admitted that there has been a great scarcity of wool for civilian purposes, but there have been fewer consumers of civilian goods. This partially explains how the supply of cloth has been maintained.

But there is more to be told in this connection. While there has been comparatively little wool available to produce civilian cloth, by skillfully combining it with other qualities of material, it has been made to last out wonderfully well in the manufacturing of fabrics, which have generally been accepted by buyers without question as to composition. Thus it is fully explained how the supply of cloth to meet civilian demands has been ample. Considering the satisfactory fabrics made from a mixed quality of raw material, it is surmised that still another result of the war will be less objection to the use of cotton as a wool substitute.

CHANGES IN MANUFACTURING

As already pointed out, any change made in methods of manufacturing to suit the emergency might be considered, at least by some people, as an improvement over the former ways practiced, and likely to be continued in use under different conditions. But this is not likely to be general, as distinct circumstances alter cases. It may be found that the cause for changing from former practice being removed, new departures made cannot be continued successfully, and that reversion to old methods is necessary for success.

The work of making army cloth is popular in mills engaged in the work, because it is comparatively easy and of small variety. It has been the means whereby superintendents and designers in particular have enjoyed a period of relaxation from their exacting duties. Mills not so well equipped for fancy work as others, have been run during the time of war to better advantage than ever before, and probably this will be the class of mills that will be most affected by the return to peace. In addition to changes put in force, there have been others advocated, but not adopted. What will be the final outcome in regard to the methods that will be best approved of and most fully practiced in the future may now be taken up.

Some people interested in solving problems affecting the woolen business seem to hold the opinion that in the past too much money has been expended in the making of samples and on account of having a needlessly large variety of styles to produce. But these people do not go to the root of the matter and try to explain the cause, or why the practice has become so common. Neither do they suggest any effective means by which an economical saving would be effected without interfering with the whole competitive system of business, which most of us still believe is the life blood of progress.

It is true that since the beginning of the war fewer samples and smaller variety of styles have been made than before, but that is simply because it has been a maker's market. Manufacturers are not simple minded, and it is not likely that they will throw money away by making an unnecessarily large variety of product. Present indications are, however, that sample looms will soon be running as busily as ever.

STANDARDIZATION OF CLOTHS

Since the war started there has been more written and spoken concerning the standardizing of fabrics than ever before, and whether or not this subject will subside with the return of peace remains to be seen. So far as woolen mills making goods for clothing purposes are concerned it does not appear now as if limitation of style and qualities is making much headway, for at present it is reported from authentic sources that in most mills equipped to make fancy goods there is a perceptible rush in getting out new samples of cloth for civilian use.

It is not made clear by those who advocate standardized cloths whether their manufacture is meant to be permanent, or only as an expedient until the condition of the raw stock markets again becomes normal. Nor is it explained what would be the complexion of the authority that would decide upon the qualities and styles of fabrics to be made, or how the authority would be enforced. This might be either in the person of a single dictator, or a committee of persons backed up by all necessary power. A Government plan of standardizing so-called woolen fabrics has been on trial in England, and samples of the goods made were exhibited in the United States during the year, but there is doubt even in England as to the merit of the plan. The advantages claimed to be gained by the English system in operation are that the cloth is made from the materials that can best be spared, and the consumer receives the utmost value for his money. It is not denied that the benefits are at least partially obtained by producing fewer distinct styles of cloth, which allows for an increased production and a saving of labor through the means of larger batches and longer warps.

Nothing can be learned from this, as both the idea and the practice are old, and the latter is very common in some places, even in normal times.

SANFORD & RUSSELL

Commission Merchants

EVERETT BUILDING
45 East 17th Street
NEW YORK

SELLING AGENTS FOR THE FOLLOWING MILLS

Nemasket Worsted Mills	-	Middleboro, Mass.
S. N. & C. Russell Mfg. Co.	-	Pittsfield, Mass.
Hillsboro Woolen Mill Co.	-	Hillsboro, N. H.

HAMILTON WOOLEN CO.

ARTHUR E. MASON, Treasurer, 77 Franklin St., Boston, Mass.

Worsted Dress Goods

WELLINGTON, SEARS & CO.

Selling Agents

BOSTON
CHICAGO
NEW YORK
ST. LOUIS
PHILADELPHIA
SAN FRANCISCO

It is not admitted here that under natural conditions any public benefit will ultimately be secured by producing a smaller variety of styles or fabrics of cloth, and the reverse may be the result; because less labor is necessary and fewer workers are required, therefore, there is a smaller pay-roll to distribute, which necessarily must restrict public business and create duller trade.

The effect of fewer and plainer styles to select from may also be a less yardage of product, because many people are induced to buy extra clothing by seeing styles of material which particularly appeal to their taste. It does seem to some persons who are thoughtful on the matter that the ever-growing tendency toward a larger display, and more elaborate or technical style, is promoted by a guiding Providence, for the purpose of providing ample employment for all.

GOOD RESULTS OF INITIATIVE

It appears reasonable to assume that initiative power exercised under a competitive system will give better results than working under a system which is not competitive; because in the former there are more individual efforts made and greater incentive to strive for excellence.

We are told in regard to the British standard woolens that one reason for the name is to let the consumer know that he is receiving the utmost value for his money. That may be correct so far as it is within the power of authority to control, but who can truly say that the value could not be made greater by a different controlling authority; therefore it is necessary to have open competition to show what standard value can be given.

It may be assumed that manufacturers desire no change from the tried competitive plan in force which, notwithstanding a restricted raw stock market, has proved its efficiency in times of war as well as times of peace and under normal conditions.

Injured Heroes Weave "Blighty" Homespuns

Useful Textile Occupation for Shell-Shocked and Crippled Soldiers and Sailors

By *William Davis, M. A.*

IN all belligerent countries efforts are being made to facilitate the return to civil life of the men who have suffered through the war. In the case of those who have left the conflict unimpaired in physical faculties the return will not be accompanied by any considerable difficulties; many do not desire to assume their indoor textile factory occupations again as their experiences in the open air have given them a taste for agricultural pursuits. Unfortunately there are many who will not be in the position to choose the kind of work they would like to take up, but will be limited in their usefulness by their various disabilities.

Of these cases one of the most difficult is that of the man who has suffered from shell shock in its various degrees, a condition which demands great sympathy and insight in its treatment. The physician has received many cases on which to test his abilities in occupational therapeutics, and it is interesting to relate that the textile industry has come to their assistance in this respect.

TREADLE HAND LOOM

Fig. 1 gives a view of the type of hand loom which has been adopted in many districts in Great Britain as a curative means of treating men who are suffering from shell shock, but who have not been maimed. It is the treadle hand loom where the shedding is performed by the weaver's feet; the loom in question being fitted with four treadles seen on the floor and marked T. The various motions of let-off and take-up will be readily recognized; W being the cloth beam operated from the cog wheel on the right, L being the warp beam likewise controlled by a toothed disc. The lay is marked B and is drawn out and in by hand in the process of weaving. The treadles T are in their turn attached to the harness shafts and the shedding is performed by working these according to the kind of weave required.

From the standpoint of therapeutics this has proved a most useful instrument; for in order to produce a piece of cloth the worker has to give action to both legs; the left arm is engaged in swinging the lay and beating up the filling; the right arm hand drives the shuttle across the race, while the eyes have to be continually on the watch to see that the warp is let off and the cloth wound on the beam. To crown all the worker has the great pleasure of knowing that he is producing something of capital importance which has a decided market value.

The fabric can be made more difficult in pattern as the cure is rendered more effective. For a start it may be advisable to work with one color of weft in coarse set fabrics, but after improvement begins the set of the cloth may be made finer and the shuttles increased in number.

COMMERCIAL OUTLETS

Fig. 2 gives an illustration of a section of the factory of A. & J. McNab, Ltd., of Slateford, Edinburgh, who have been the pioneers in this kind of work in Great Britain, and have for the past two years been experimenting with handloom weaving with a view to making it a sound commercial proposition. They have had considerable opposition to overcome by many who have revived the usual comparisons between power and hand loom weaving. Many have advocated that the men should be installed in a modern factory right away, but such have no knowledge of the subject.

Those who have made a careful study of the problem of the disabled man realize that a large number will never be able to enter the hurly burly of a factory again, or at least not for a very long period, and a great deal of sympathy will be required to be shown in their special cases. There are many whose nerves are so badly shaken that the sound of a power loom, with the vigorous and noisy blows given to the shuttles, at once revives visions of the battlefield in a most realistic fashion and causes their instant collapse. Such men require to pursue their avocation in quiet surroundings and in small ateliers, and many will be able to give only a modicum of their former industrial output.

In many cases even the hand loom weaving establishment proves too noisy and men have to get the looms installed in one of the rooms of their home. For all these phases Messrs. McNab have provided, and their scheme has received the warm support of the British Ministry of Pensions, a department responsible for the care and industrial training of these men.

SOLD AS "BLIGHTY" TWEEDS

A strong feature of their scheme is that all goods are sold under a brand name of the "Blighty" tweeds, and are guaranteed to be hand woven by a discharged or disabled soldier, his name being marked on each piece. In marketing the fabrics, Messrs. McNab have received the assistance of the large London house of Burberry's, Limited, who have taken the entire products of the firm for a period of ten years. In most of the larger towns may now be seen in the highest class shops a corner devoted to the exhibition of "Blighty" cloths, and they find a ready market among those who are pleased to give a few extra shillings per suit length for a cloth guaranteed to have been produced by the labor of the defenders of civilization.

Among the equipment of the shed illustrated in Fig. 2 may be mentioned a number of hand looms of the dobby type, which are rather more easy to manipulate on account of their having only one treadle for making the shed.

FABRICS PRODUCED

It should be explained that the British textile market has always been able to absorb a certain quantity of goods made on the hand looms of workers located in the rural districts of Ireland, and certain parts of Scotland and Wales. These were guaranteed home made and in many cases were homespun, the fabrics enjoying great popularity among the wealthier classes who found them ideal for purposes of hunting, shooting and holiday wear generally. They were simple in twill and color and if the hand loom weaver worked them irregular in set or pattern, this was regarded as a sure proof of the authenticity of the goods.

The irregularities peculiar to spinning on the hand wheel, large lumps of material of nest like character in the yarn with strong kempy fibers protruding were all looked for in these goods. Makers today do not attempt to perpetuate the "homespun" character of the goods as it has not been possible to produce real homespun yarns in anything like the quantity necessary to meet the demand, but in machine spinning, various devices are allowed which give to the yarn a sufficiently irregular character without causing blemish to the texture.

Figs. 3 and 4 show typical "Blighty" cloths. The filling is usually solid colored and both warp and filling are made of yarn spun and carded on the woolen system, the wools being either entirely blackface, or a mixture of blackface with cheviot.

A common style is to have warp and filling yarns of a size equivalent to 100 yards per ounce, the weave being common 2 and 2 twill with a set of 19 threads and 19 picks per inch. The pieces are woven narrow width, about 33 inches in the loom, which when finished gives 28 inches wide with a finished weight of 13 ounces per yard. One weaver on the hand loom can produce about 24 yards of cloth in a working day. Two pieces of 48 yards each

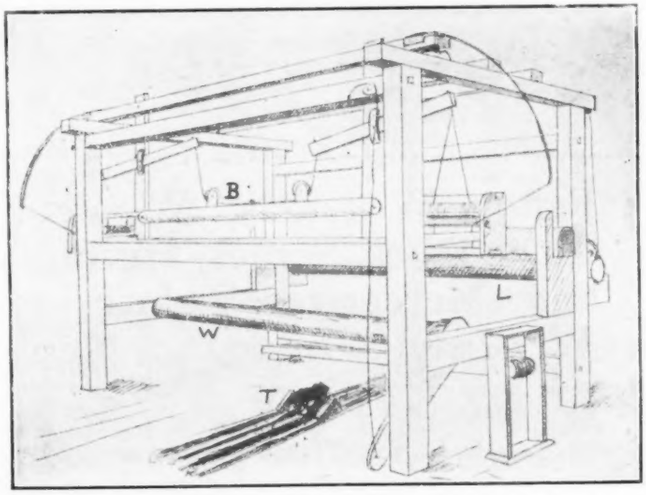


FIG. 1—TREADLE HAND LOOM USEFUL IN KEEPING SHELL-SHOCKED MEN EMPLOYED

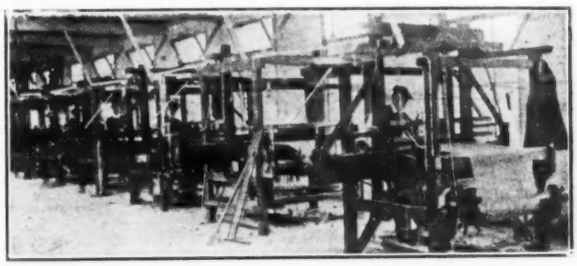


FIG. 2—VIEW IN THE "BLIGHTY" FACTORY AT EDINBURGH

Delavan C. Smith,

CLARENDON BUILDING
FOURTH AVENUE AND EIGHTEENTH STREET
NEW YORK
SELLING AGENT
FOR
FRENCH RIVER TEXTILE COMPANY
FINE WORSTEDS AND WOOLENS
MECHANICSVILLE, CONN.

HALL BROS.
HALLVILLE MILLS
FINE FANCY WOOLENS
NORWICH, CONN.

SAXTON WOOLEN CORPORATION
FINE FANCY WOOLENS
NORWICH TOWN, CONN.

FIDELITY FINISHING WORKS
INCORPORATED

DYERS and FINISHERS

OF MENSWEAR AND DRESS GOODS

TRENTON Below ALLEGHENY AVE.
PHILADELPHIA, PA.

Coronet Worsted Co.
Allenton Woolen Co.
Joseph E. Fletcher
Proprietor

New York Office and Salesroom
EVERETT BUILDING
45 East Seventeenth Street

SELL DIRECT
Fancy Worsteds, Woolens, Piece Dyes, Serges, Mixtures and Mercerized Fabrics in Wool and Worsted for Men's Wear

E. M. STOUT, Sales Manager

can be produced per week by a diligent worker, but this may be stated as almost a maximum. The earnings for such a production would be over fifteen dollars, which would bring the cost of weaving to about sixteen cents per yard.

Of course these fabrics can be made considerably lighter to suit different climatic conditions, but obviously, if the fabrics are made finer we are confronted with increased labor of weaving, and consequently reduced output from the looms. In the Bradford district the hand looms have been set to weave narrow width articles such as scarves, where the fabric is finer in set and the patterns quite elaborate in character; these are articles which can be produced quite well on the hand loom on account of their special character.

of about seven dollars, so that in many cases the worker is earning considerably more than formerly. The structure of the loom is such as to make it quite easily worked and the comparatively slow rate of speed compared with the power loom enables the fabrics to retain their characteristic features. Such cloths are not scoured, fulled and pressed like the power loom product. There is a good scouring given, but little fulling, while pressing is confined to a very slight treatment.

It is gratifying to learn that the fabrics produced in this way are in ever-increasing demand. Manufacturers have taken all the looms which Messrs. Hall can make of this type for the next ten years, and all the cloths have a guaranteed market for a like period.

ployed is given a ten years' guarantee of employment, and a large London merchanting firm has taken over the entire production of five hundred men for this period.

Those who are tempted to be hasty of all proposals which do not partake of the ordinary factory organization should bear in mind the condition of the human material that has come out of our wars; sympathy, insight and careful adaptation are necessary to the solution of the problem. It has been seen repeatedly that many men, on account of the abnormal nervous strain which they have passed through, are unable at first to concentrate their attention for any length of time on a particular occupation, and these tendencies require much thoughtful consideration to overcome.

time, as a change from the more perfect power loom fabrics. This is particularly the case when it is a question of clothing for leisure periods, such as the national games, shooting, fishing, etc. For those who have learned to appreciate the homespun product, these are the fabrics which, above all others, tend to induce the holiday spirit. The change of garment at once causes the holiday feeling to assert itself, which is a matter of importance in the case of the individual worried with the cares of business, or in urgent need of recuperation.

The fabrics, although thick in texture, are open in structure and the spinning on the woolen system from long fiber wools causes them to be quite cool in warm weather. There is free ventilation, which minimizes the effect of per-

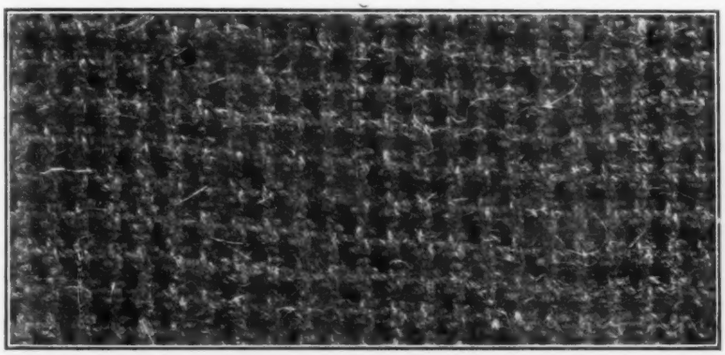


FIG. 3—A TYPICAL "BLIGHTY" CLOTH

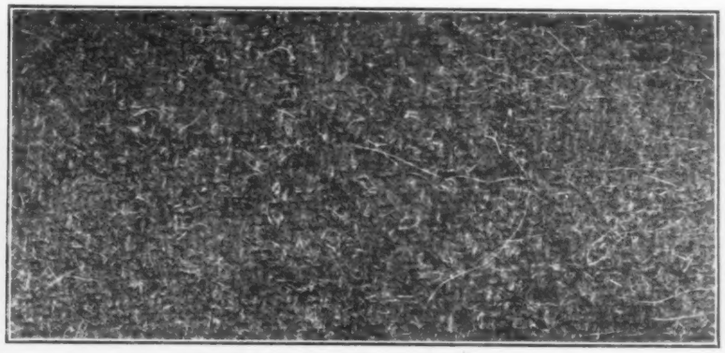


FIG. 4—ANOTHER SAMPLE OF "BLIGHTY" GOODS

Experience has shown that for many cases of disabled men, especially those who have one limb missing, the hand loom has not proved acceptable, however much it may have to commend it in the case of those who are suffering from shock and seek this means of recovering their normal activities of mind and muscle. To reserve the hand woven character of the fabrics and still maintain the quiet form of work under congenial conditions, the half mechanical loom has been devised. This loom is made by Robert Hall & Sons, Bury, England, under the title of the "Flowers" patent from the name of an inventor who has adapted the existing calico loom for the making of heavier goods of this character.

The ordinary cotton loom is found to be too lightly constructed to weave these fabrics and the ordinary cam loom has been built stronger to make it suitable for the heavier fabrics of the woolen class. Fig. 5 shows a view of one of these looms where its general similarity to the plain cotton loom may be quickly recognized.

The let-off motion is automatic and the take-up movement is operated by a friction and weight principle. The shedding is performed by means of a set of undercams.

The loom is seen to be operated by a one-armed soldier who has his arm on the handle of the loom in the act of pulling the lay forward to beat up the weft. In this loom there is but one shuttle and one color of filling, and the worker draws the lay out and in to produce the fabric. This can be performed with considerable ease; the working is pleasant and much easier than that of the hand loom.

With average application a weaver can produce over twenty yards of this type of fabric per day, which enables him to earn over sixteen dollars per week. To this, it should be explained, the Ministry of Pensions add a pension

As compared with cloths produced by machinery they are more expensive, although, strange to say, the cost of weaving does not increase the price of a suit by more than a dollar. The public are very willing to give this little extra amount in recognition of their country's heroes who are thereby helped and a congenial and comfortable occupation afforded them.

INTEREST IN UNITED STATES

Since writing the above the author has learned that the subject is creating great interest in America. I have received letters asking for fuller particulars from the American Red Cross Institute for Crippled and Disabled Men, New York City. Further, retailers' associations of the United States have written to say that the fabrics are in demand and asking where supplies may be obtained. From the promoters of the scheme I have received a set of patterns showing the texture and coloring of these goods, in regard to which I may add a few further particulars.

Crippled and disabled men are being discharged into the labor market every day and it is an urgent problem as to how they have to be employed in the future. It is a mistake to find work for the discharged man in some branch artificially created and purely temporary. There must be no taint of charity in such schemes and it should be emphasized that any suggestions likely to be of permanent benefit should be based on sound commercial lines. The promoters of the "Blighty" scheme have had two years' experience in its working and after varied experiments they have managed to evolve a scheme which has become a practical industrial organization employing a large number of crippled men and ready to employ hundreds more when adequate raw material is made available and the necessary looms procured. To indicate the stability of the business, every man em-

The particular industry outlined above is specially directed to those who are suffering from the loss of a limb and can be adapted to those who have lost both an arm and a leg; the earnings are such that, in spite of this deficiency, the man is often able to earn more than he did in pre-war days, even allowing for the increased cost of living.

FEATURES OF "BLIGHTY" HOMESPUNS

Further particulars have been received regarding these interesting fabrics which may be of interest, seeing that merchant houses in America are making enquiries for them. The writer is not quite sure that the weight is suitable for the American market, for these fabrics are essentially of a thickness and weight generally regarded as too heavy for American productions. It may be, however, that the public demand for very fine cloth of light weight is not always justified, and that the homespun may find favor when its peculiar qualities come to be recognized and appreciated.

What are the salient features of these patterns? The writer has forwarded a full set of patterns which TEXTILE WORLD JOURNAL has on exhibition at their offices and in the colorings of these fabrics it can be noted an effort is made to reproduce the tints of nature, the ruddy browns of autumn foliage, wild flowers, plumage of birds, moorland heather, and mountain and forest landscapes.

In the hand loom product we have a certain individuality which is always present to the discriminate eye. The weaver is able to "humor" the warp and there is an absence of inter-fiber strain associated with power loom weaving. Machine woven goods present a certain aspect of uniformity and their very perfection sometimes palls on the observer.

In most countries there is a limited class of wearers who prefer the more natural homespun product from time to

spiration. They are elastic and resilient in physical property, which greatly aids freedom of movement to the arms and legs.

The finishing operations of scouring and fulling are conducted so that a certain percentage of natural oil is retained in the wool, which serves to make the fabric, to a considerable extent, water-resisting. If greater warmth is desired, this can be achieved by the addition of a light overcoat on top of the homespun suit, which at once makes it much less conductive of heat.

The lack of stiff and permanent finish enables the garments, be they for ladies' or men's wear, to curve in to the form of the limbs and the body, thus adding

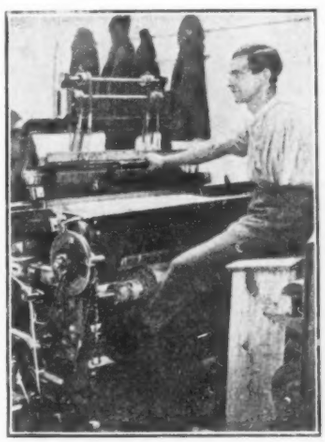


FIG. 5—MECHANICAL LOOM WORKED BY HANDLE BY ONE-ARMED MAN

to ease and comfort. In recent years this class of fabric has been used for ladies' costumes and mantles to an increasing extent, and these weavers have developed a decided preference to the rougher wool classes, in contra-distinction to the smooth-surfaced textures.

TENTERING & DRYING MACHINES
FOR
BLANKETS
KHAKI
OR
WOOLENS & WORSTEDS

D. R. KENYON & SON
RARITAN, N. J.

NEW ENGLAND REPRESENTATIVE
PETER JOHNSON
BOX 677, PROVIDENCE, R. I.

ESTABLISHED 1885

R. H. HOOD COMPANY, INC.
Manufacturers of
Comb Circles and Fallers

For Wool, Flax, Silk, Jute and Ramie
Worsted Machinery Repairs
Flyers and Spindles

1842-46 GERMANTOWN AVENUE
Philadelphia, Pa.

ENGLISH CAST STEEL PINS
CIRCLE PLOWS
ROLLER COVERING AND ROLLER LEATHER

The "ECLIPSE"
Portable Mill
Sewing Machine
Equipped with Hyatt Roller Bearings
Over 7000 in use

For stitching together the ends of cloth before Dyeing, Drying, Washing, Bleaching, Shearing, etc.

ADAPTED for all uses in Cotton and Woolen Mills, Print Works and Bleacheries.

Strongest and least complicated machine on the market. Sews any grade of goods wet or dry, thick or thin.

Loopers, needles, thread and all sewing machine supplies.

WM. SMITH & SONS
TEXTILE MACHINERY
LAWRENCE, MASS.

Incomparable
RUB-APRONS
all that the name implies
Plain Single Corrugated
and
Diamond Cut
also
WORSTED APRONS

WM. J. QUINN & CO.
242 Chestnut St. Philadelphia

Worsted Yarn Industry Mobilized for the War

Steadily Soaring Prices with Raw Material Uncertainty Disconcerting Factor

"ENLISTED for the war" was the position of the worsted yarn industry of the country during the year. Such being the case, there was, during the period of Governmental domination of this industry, an entire absence of anything which could in any sense be called a market. Civilian business was forced into the background and the limited machinery engaged on this class of work was forced to depend upon irregular sources of supply. The uncertainty of this end of the trade, and the limited quantity available to meet the demand brought about prices which touched record figures. However, these can hardly be termed strictly market values, as the premium exacted, varied in accordance with the cupidity of the seller, and the ability of the buyer to pay the price. With the majority of the spindles of the country engaged for the most part of the year on Government yarns, there was necessarily a production limited to the few numbers required for this class of work. Therefore, the normal conditions of the market as represented by the accompanying chart, can hardly be presented in the usual manner, since these average yarns were not generally found in the business done. At the same time, the strict control exercised by the Federal Government over the wool supplies of the country, issued at a fixed price, resulted in a narrower range of prices for these yarns, according to the varying costs of production as found in each mill.

PERIODS OF UNCERTAINTY

There were, at various times of the year, periods of uncertainty for the trade pending definite announcements of the Government's policy, both as regards Government work, and the possibility of the release of wool supplies for civilian work. These caused frequent apprehension as to the future status of the industry, as with Government contracts drawing to a close, civilian business was considered the only opportunity to maintain the mills in operation and the help engaged therein. However, at such times, Government officials eventually came to the rescue with additional war contracts which furnished the mills with at least enough business for the time being to relieve this anxiety. One of the chief sources of annoyance was the problem of labor supply. Few mills were able to meet the competition of higher wages paid in munition and other plants, with the result that many mills were unable to produce their normal output. This situation also brought about increased costs of production, and this with increases in wages from time to time, offered little chance for profit, as frequently the manufacturer found his costs increased after receiving his contract, which tended to wipe out his margin of profit. However, the industry was patriotically devoted to the carrying out of the military program of the Government as far as possible, so that the war might be brought to an early and satisfactory conclusion.

CAUTIOUS ABOUT CIVILIAN TRADE

The close of 1917 found the industry passing through a period of uncertainty as regards civilian business. The future position of the wool market caused more or less apprehension, with little desire to take any chances on this material. The possibility of Government control of some sort was also discussed, as it was generally admitted the extensive program outlined afforded little of the limited stocks of wool for civilian use. Manufacturers therefore were endeavoring to find expedients to use what materials they had at their command, in the form of combination goods, so as to keep yarns and goods prices down to a level which would meet the ideas of buyers. This matter of price caused the market to move slowly on these lines. In the meantime, however, manufacturers engaged on army contracts were taking 2/24s and single 10s and 12s filling as rapidly as produced, and many spinners were engaged very largely on this work. Stock lots of yarns formed a large part of the trade, although these did not appear in abundance. Yarn prices were naturally hard to analyze, as spinners were not able to secure their top asking prices. With a scarcity of domestic stocks, a varied assortment of yarns was offered, with as varied range in prices. For example, 2/32s were noted at $2.00 and $2.05 for certain stocks, with others asking as high as $2.30; while 2/36s ran from $2.40 to $2.70. The civilian trade was watching to see what the Government would do on their orders. The realization of the wool situation naturally gave some confidence in the stability of this market, but it was argued that unless the Government took steps to control raw material, it would be difficult to handle the fabric end.

GOVERNMENT ORDERS ABSORBING

In view of the uncertainties of the situation, many spinners preferred to accept only Government business, and some even declined to accept civilian orders for fear of inability to secure needed coal and shipping facilities. Gradually the Government orders increased, although for some time officials hesitated over the necessity of meeting the added costs of manufacturers. The yarns required for these goods included 2/24s worsted warps, and single 12s wool filling for the most part in suitings. The usual numbers were not active factors in production. Civilian mills were paying $3.00 for 2/40s, $3.15 for 2/50s, in stock lots, where they could be secured. Dress goods were showing scattered activity in jersey cloths and wool poplins. For the former, single 24s to 50s French spun were taken, with the latter at $3.15. Woolen spindles were largely engaged on Government yarns for puttees or filling yarns, and it was difficult to place orders for further contracts.

The Government's exercise of its option in March on South American wools purchased since December 15 caused more or less disturbance in the trade; some spinners even withdrew prices to see what would happen to wool supplies, and many declined absolutely to sell ahead. At this time a new decision on army specifications caused a revival of inquiries for yarns for new 20-ounce suitings in three different combinations of all worsted, worsted and woolen and all woolen, calling for 2/20s warp and single 10s filling. The lowering of these numbers, it was pointed out, would necessitate a large consumption of wool, and it was also shown there was a scarcity of wools suitable for Government requirements. Several spinners were not in position to offer new business before July on these new specifications, with more or less adjustment required from the former production to the new.

INDUSTRY BECOMES MOBILIZED

Gradually, however, the entire industry was becoming mobilized for Government goods, as it was realized that special efforts must be made to carry out the program determined. A questionnaire was sent to all mills requesting details as to the machinery available, deliveries and their current work. Civilian business was requested to be deferred temporarily until the existing emergency was met. Following this idea, the Government in April took over the entire wool stocks of the country in order to exercise control over their distribution for military needs alone. This announcement was received with some little satisfaction, inasmuch as it at least allowed the trade to know definitely where they stood, with the realization that civilian business must remain a minor issue.

As a result of this Government control of raw material and the practical control of the machinery of mills for its needs, the worsted yarn market as such ceased to exist, where buying and selling is carried on, based on the fundamental laws of supply and demand. Civilian business was being cleaned up as rapidly as possible. Under the regulations set forth by the authorities wools were allotted to spinners against Government contracts at the issue prices based on those of July 30, 1917, and yarn contracts also distributed by a central agency where necessity arose. Naturally the production of civilian yarns was exceedingly limited, and stock lots commanded increased premiums, with 2/40s reported sold at $3.15, while on Government yarns made from Government wool 2/20s in khaki were quoted at $2.20 to $2.25, and single 10s khaki three-eighths at $2.40 to $2.45; single 21s French spun, out of three-eighths for shirting flannel, at $3.10. However, varying conditions in mills made it difficult to get a standard yarn price. There was also for a time more or less difficulty in securing required wools through the Government's plan, as, naturally, the enormous scope of this proposition needed time to work itself out. At times many spinners were in a serious position because of a lack of needed wools, but gradually this situation righted itself as the wools were prepared to meet demands made upon them.

BASIS BECOMES MORE DEFINITE

By June the industry was in better shape, with established wool prices and supplies, while yarn prices for Government fabrics were also fairly definite, with 2/20s to 2/24s out of 44s at $2.17½ to $2.20 in khaki, and $1.95 to $2.00 in the oil, with 10s filling out of 50s quality at $2.47½ to $2.55 in khaki, and $2.25 in the oil; 15s to 17s out woolen, dyed, at $1.85; single 20s out of 58s for shirting flannel at $3.10. For civilian lines further premiums were noted on stock lots, where manufacturers were able to pay them, as, for example, $3.25 to $3.40 for 2/40s, and 2/50s at $3.50 to $3.60. It was apparently the Government's idea to keep all possible machinery on the 20-ounce suitings, at least until September 1. In the meantime increased costs of production and labor shortage were found to necessitate advances in yarn prices, and by the end of June some were declaring 2/24s khaki would cost $2.55 instead of $2.20, because the original stock of 44s wool used was exhausted and the domestic wools now must be used.

To meet the wool situation the Federal authorities endeavored to restrict certain grades for various fabrics in the hope or relieving the stress, but this tended to upset conditions in certain mills, and to increase their costs of production because of changes which had to be made in their equipment. Fine wools were supposed to be used for underwear; half-bloods for shirting flannel, puttees, gloves, etc.; three-eighths for 20-ounce goods. An effort was made by the authorities looking after the distribution of yarn supplies, to restrict shipments to the zone in which they originated. However, this did not work out satisfactorily, and it was not generally followed. As time went on the production of yarns for Government goods increased, with civilian business deferred, the question was raised as to their cancellation, but many looked with disfavor upon this plan.

By July still further advances were noted on yarns, and 2/20s quarter blood khaki was quoted at $2.55 to $2.60, with single 10s three-eighths khaki at $2.75. Manufacturers claimed this would mean a cost of $4.50 for 20-oz. suitings, compared with the highest price paid so far of $4.25. As Government contracts began to show signs of conclusion, manufacturers began to wonder if there was to be any chance for civilian lines in using wools which the Government had not required. Efforts were made to secure the release of wools for this purpose, but no satisfaction was received on this score. Later announcement was made that bids were to be opened for further contracts, which would permit of the distribution of business among the mills in position to handle that work. Great interest was attached to these bids, and it was found mills operating their own spinning were able to offer lower bids, as a wide range of quotations was noted, indicating the varying conditions of the industry as regards costs of production and materials. The offerings also were far in excess of the requirements, showing the need for business. These orders were gradually parceled out among the mills and spinners soon became well engaged on this work. By August it was shown 50 per cent. of the spindles were engaged on Government work, and this increased until the following month it was over 62 per cent. The scanty hope given civilian work continued to boost prices for stock lots of yarns, and $4.75 was reported paid for 2/40s by an anxious buyer, with 2/50s around $5.00 and even $6.00 asked.

APPREHENSION A FACTOR

As the fall developed, and manufacturers began to see the end of the Government orders on their books, considerable apprehension was felt as to the future of the industry. With no wools offered for civilian business, unless further Government business was forthcoming, the mills would be confronted with the necessity of closing down and losing their organization. The trade discussed the matter and collected statistics to

Spunartsilk Yarns

ARTIFICIAL SILK
Tops and Noils

For Spinners of Woolen and Worsted Yarns

Our notion of Service is primarily to furnish high quality Yarns, Tops and Noils at reasonable prices. This has been our policy from the beginning. That it has been appreciated by our customers is proved by the rapid growth of our business.

Abeeco Mill, Inc.

1941 Adams St., Philadelphia, Pa.

show actual conditions. It was eventually shown that 72 per cent. of the mills represented at a meeting in New York would be closed at the end of the year unless additional business was offered them, or opportunity was given to make civilian lines. These yarns were at all times scarce, with a limited production confined to those mills spinning them on their own machinery out of free wools they already owned, as opportunity offered in the midst of their Government business. In the hope for civilian releases, stock yarn began to show a decline, especially in connection with the expression of opinion deprecating the profiteering tendency on these offerings; 2/50s came down from $5.00 to $4.50, and 2/40s from $4.50 to $4.00 and $4.10. There was a feeling of insecurity in the trade until eventually the authorities announced that, in view of the situation, they would advance their programme and ask for bids for their supplies for the first quarter of 1919, including 23,600,000 yards, stating that even in the event of an armistice there would be no let up. However, contracts offered in November contained a 15-day cancellation clause which excited much comment. On the very eve of the opening of these bids the news came of the signing of the armistice and the prospect of peace. Immediately orders were issued stopping all work in process, and these presumable cancellations threw the market into coufusion. It was felt the Government would protect the manufacturers who came to their aid, and that there was no intention to disrupt the industry. However, there were many who were confused over the situation, and the prospect of adjustment of losses sustained.

CIVILIAN TRADE SLOW

With winding up of Government business, civilian business was slow in starting. In the first place manufacturers felt wool prices issued by the Government were too high. In comparison with the English issue prices, a difference of about 40 per cent. was noted, and much apprehension was felt of an invasion of imported goods which would undersell domestic products. Early quotations of civilian yarns were experimentally noted with 2/50s at $3.40 to $3.50; 2/40s at $3.-10 to $3.25; 2/32s at $2.40 to $2.45. Spinners were not over anxious for business ahead, as they had hopes for a decline in wool prices, and much anxiety was felt in the future policy of the Government on wools. The announcement later that they would be sold at auction gradually tended to delay any activity, as the trade desired to await these sales in the hope this would establish a market value for wools here. Therefore the allotments of wools previous to the auction were very moderate, and only for immediate needs. Some spinners it was said were inclined to quote a low price until they obtained business to run their mills, planning to advance their prices later.

The announcement of the auction of goods by the American Woolen Company on the eve of the wool auctions was received with great interest. The sale was watched as more or less an indication of the limits of this market, but the results secured went far to establish confidence. The opening wool auctions were also noted with attention, especially in the high prices paid for the better grades of Australian wools, and the comparative neglect of the lower grades in South Americans, Cape wools, tops, etc. At the same time the opinion was expressed that this first sale would hardly tell the real story, as it was admitted many mills were in dire need of immediate wool supplies. However, it was accepted also as an effort to fix wool values on which spinners, temporarily at least could base their figures. With this out of the way, it is expected manufacturers will be in a better position to bid for business, with the confidence that the need for goods of quality will result in good business gradually developing following the readjustment.

KNITTING YARNS ERRATIC

Knitting yarns during the year occupied a more or less anomalous position. At the outset, manufacturers had placed good orders ahead, some even as far as as June. Prices were ruling firm. The demand for hand knitting yarns was maintained and still dominated the market. As the new year opened, manufacturers were taking their yarns with due regularity, as they had good business on their books. Demand for hand knitting yarns tended to ease somewhat as the time went on. Large stocks in the hands of distributors and the high prices asked were believed to have brought about this let-up, but further activity was expected. As the plans of the Government were outlined and it was realized to what extent they would require the available wools and machinery, many knitters saw they would have to take their yarns as they could get them. Therefore there was little haggling over prices where yarns were needed. They tried to place orders ahead, but spinners declined to take these orders in view of the position taken by the Government. For some time there was a rumor afloat that the Government would buy sweaters for the army, but these failed to materialize.

GOVERNMENT DEMAND RESTRICTED

The only yarns taken for Government use in the knitting field were French spun 80s and 30s for underwear, with yarns in worsted and woolen for hosiery in various weights. French mills were very largely engaged on these underwear yarns. It seemed that many manufacturers were slow to realize their position as their efforts to secure yarns were pathetic. Those that had taken puttee business were of course in the best position. Other mills who had made standard quality of goods on which they had built up their reputation, declined to make the cheaper lines in a 50-50 combination of worsted and cotton, and preferred to close down. Others endeavoring to make up these goods, found it difficult to secure cotton yarns. The future of this trade was decidedly uncertain.

By August, the production of hand knitting yarns was restricted. It was realized the poundage of this class of yarns was about the largest ever known, requiring an enormous quantity of raw wool. As this was stabilized the production of these yarns was restricted to gray, oxford, khaki and blue. In this position the knitting trades struggled along as best they could. The signing of the armistice and the release of wools for civilian use did not find these mills making efforts to secure yarns. There was a general expectation that yarns would decline, and they preferred to await this status and the results of the wool auction. The end of the year finds this trade marking time, confident in their ability to get business, and only desirous of knowing on what cost basis they must figure.

CONFIDENCE URGED

At the year's close, the entire trade is noted generally confident of the future. There is some apprehension of competition of lower priced products from abroad, but many feel this is exaggerated and that domestic manufacturing should go ahead and forget this bogey. It is argued these mills have a large market nearer at home which they can cultivate to more permanent advantage. As for wool prices, time it is felt will adjust this situation to meet condition. As the Government wools are offered to the trade, the true market value will make itself felt through the law of supply and demand. While at this writing, there is more or less confusion on this score, most factors express the sincere belief there is every reason to look for a satisfactory working out of the problems confronting them in the reconstruction period.

Silk's Year Erratic

Condition Brought About by War Had Restrictive Effect Upon Trade

WHILE not directly affected by war the raw silk market throughout the year was shaped more or less by war conditions, and at best trading was erratic. At times, usually of short duration, there was a fairly active demand, yet for the greater part of the year demand was not of an active character. The usual policy of manufacturers was to confine their purchases close to their positive needs for short periods, and few consumers were intrepid enough to anticipate the future to an appreciable extent.

Importers were constantly bothered by conditions out of their control, and which they could not foresee. Cable service was at best erratic and delays of four to five days in the receipt of advices from foreign markets were more common than not. The announcement of these delays was accentuated by the fact that for a considerable period the Yokohama market was constantly fluctuating, and importers here were at a loss to know just what was happening. Shipping space, or rather the lack of it increased the difficulties, and there was a constant doubt as to the ability of importers to bring in sufficient supplies of silk.

The price situation was devoid of particular features, and maintained a more or less even tenor. Fluctuations during the early part of the year were common during the first month or two, but toward the latter part of March a sharp advance in Yokohama was reflected here and levels advanced to a basis of $5.90 for Shinshu No. 1. No important change occurred until close to the end of April, when a slump in values reduced levels from 10 to 20c. in the local market. The weakness was soon overcome with an advance in June that fully discounted the decline in April. New crop cocoons were in active demand in Yokohama, and prices realized varied all the way from 1,600 to 2,000 yen.

THE YEAR'S COURSE

At the start of the year trading was more or less apathetic, and buyers were inclined to do no more than cover their positive needs. From the latter part of 1917 high prices were carried over and there was no little doubt in the minds of manufacturers as to the stability of such high levels. Conditions in the mills from the standpoint of production were at least not encouraging. The fuel scarcity was rather acute and in most instances mills could not operate more than part time. The future outlook in that regard was then so uncertain that mills did not care to do any anticipating in their raw silk purchases.

Toward the close of February there was a slight improvement in mill conditions and manufacturers began to show more interest in purchases of silk. At this time Japanese interests dissolved their price agreement, perfected late in 1917, that they would not sell below 1,300 yen, but this had no effect so far as prices were concerned in the local market.

SCARCITY OF STOCKS

March brought up the question of a license to import silks as a Government action to relieve the shipping situation. This was a much mooted question for several weeks, but ended with no action being taken. Shipping space had become so scarce that silk was brought in only in comparatively small amounts.

In early April the steady upward movement of prices had a restrictive influence upon buying. Manufacturers were not confident that values would maintain the levels they had reached and consequently did no more than a nominal buying. Their expectations were realized soon after the middle of the month when a decline of fully 20c. a pound resulted, but levels did not remain soft more than a few days.

May saw no unusual developments, but in June consumers began to realize that there was more than a fictitious strength to prices, and began operations in the market on a more extensive scale. The small supply available in the market, and the uncertainties of imports because of lack of shipping, allowed little freedom in buying. Increased trading in Yokohama, largely due to an active American demand, forced prices up there and was reflected in the local market with advances of 10c. to 20c.

Manufacturing uncertainties during the summer months had a quieting effect, and the market went along without important features either in the character of trading or in price levels.

September saw the issuance of the Government's list of essential industries and the exclusion of the silk industry from this list brought about considerable uncertainty in the industry as a whole, with a resultant lack of demand for new silk. Manufacturers were never clear as to how they were to fare under the Government's scheme of extending priority, and naturally were not inclined to do more than take care of business actually in hand.

The spread of influenza during October hurt mills severely and production was cut fully half. In many instances mills were forced to shut down for weeks at a time, or to run on short hours with a limited working staff. Such conditions prevailed during the greater part of the month, so that the ruling from Washington that silk production was to be cut to 50 per cent. of pre-war output in conjunction with the program of the Conservation Division of the War Industries Board meant no real change for the industry; in fact, many manufacturers stated that 50 per cent. of pre-war production was more than they were able to get out of their mills.

J. T. ROBEY

YARN

WORSTED WOOL · MOHAIR HAIR · CAMELS HAIR · NOVELTY NOVELTY

WANTED

FINE WORSTED YARN ACCOUNT

Either FRENCH or BRADFORD SYSTEM

Correspondence Solicited

Local and Long Distance Phones
Cable Address : "Robey, Philadelphia"

232 CHESTNUT STREET
PHILADELPHIA

FRANKLIN YARN MILLS

J. RANDALL & BRO.

INCORPORATED

GERMANTOWN, PHILADELPHIA

Woolen and Merino Yarns

Artificial Silk Mixers

Specialists in Unusual Yarns

Wool Market Approaches New Birth of Freedom

Passage of Government Control After Unprecedented Experience

THE wool Phœnix is emerging from the ashes of Government control. To summarize concisely the review of the year which follows it may be said, first of all, that Boston still retains its prestige as the premier wool market of the country. There is more wool in Boston today than there was a year ago. Wool prices being substantially those of July 30, 1917, are lower than those prevailing at opening of year.

The eclipse of Government control is passing. The Quartermaster's Department, though desirous of getting out of the wool business, is decidedly averse, however, to selling any wool at a loss. And now that it is definitely established that the Government will live up to its "moral obligations" to take over the entire balance of the 1918 clip, the disposal of 325,000,000 pounds of Government owned wool so as to please growers and clothiers who want strong prices, on the one hand, and manufacturers, who, facing European competition, would rather see a fall in values on the other, is a task of considerable perplexity and magnitude.

If 1917 were one of the most successful years in the history of the wool trade, the year just ended was unquestionably the most momentous, considering the radical changes instituted by Government control and the strenuous efforts made by the trade to adapt itself to unprecedented conditions. At the beginning of the year the wool trade faced a crisis, the exact character of which was undetermined; and the general impression was that somehow or another, and with the best and most patriotic of purposes, the Government intended to put wool men generally out of business. But now control is lifting and with the new year the wool trade is coming back to its own. Individual initiative will no longer be stifled and American enterprise will again operate in a free field.

The year 1918 commenced with a prevailing optimistic spirit. Prices kept up well. Australian wool auctions with all their novelty brought zest and interest to the market. There was a fairly steady demand for foreign wools. The Argentine Congress passed an export wool tax amounting to about 5 cents per pound for Buenos Aires shipments. Argentina and Uruguayan wool clips, according to cable estimate, were represented as around 430,000 bales with a weaker market for available stocks. As the month came to a close local conditions became more unsettled. The expectation that the Government would interfere in buying and selling to a much larger degree than heretofore, induced liquidation in some quarters.

HEATLESS DAYS AND ERRATIC TRADING

Heatless days were prevalent in February. Clerks and bookkeepers were found working in their overcoats. Railroad embargoes were in force tying up traffic and causing no little disturbance in receipts and shipments.

The South American market was fairly active and England was reported as buying freely good unskirted wools at 67c. There was much curiosity in the trade to learn how Americans, who were buying in South American markets, expected to get by the Government option which gave authorities right to take over such wools at July 30 prices less 5 per cent.

It was thought that the Government had exhausted its budget of novelties, but the expectation later proved very ill founded. Government intentions as to price control were not yet revealed. Such price fixing was considered by no no means remote and Southern Senators were afraid that if wool prices were fixed cotton would be the next on the bill.

The market was aroused by a rumor that the Government intended taking over control of the shipping and that fewer vessels would be available for the South American trade. At this time Japanese buyers were taking fine M. V. crossbreds at 85c., while French buyers were busy in the B. A. market.

Trading in domestic wools at the beginning of the month fell to a low ebb, little being done in fleeces and transactions in territories being confined chiefly to three-eighths blood at a cost of about $1.50 clean. Domestic wool growers were less optimistic; nevertheless, at the end of the month large sales of territory wool, mainly fine, fine medium and half-blood grades were sold at from 58c. to 68c. in grease and were estimated to cost the purchaser about $1.65 clean. Australian wool auctions were coming to an end. The strong prices obtained at beginning of series began to weaken and at the fifth sale Sidney and Queensland 64s sold on an estimated clean basis of $1.87 to $1.94. A large quantity of defective wools was withdrawn from the sales.

GOVERNMENT CONTROL EXPANDS

Buying in the Buenos Aires market, which had become quite active, received a severe check by an order sent by Quartermaster Goethals to the war service committee of the Boston wool trade, informing all dealers that the Government would exercise its option and would arrange to take over suitable wools grading from 44s to 56s, including so-called class 4 crossbreds, at July 30 prices, less 5 per cent. Not more than one-third of South American imports would be affected by the order, it was thought, but on those likely to be taken over a loss of from 5c. to 6c. per pound was expected. No protest was made on Government action. It was very generally considered that those traders who operated in South America knew they were taking a chance in so doing.

Local trade became dull. The street became greatly interested in how the Government would exercise its option. Many points had to be cleared up and in reply to queries, Quartermaster Goethals announced that "the intention is to exercise the option irrespective of whether the wool is imported directly by manufacturers, or by dealers for manufacturers, or by dealers for their own account, and without regard for the intended uses for which the imports were made." Thus the control net began to close in on the struggling dealers.

Australian auctions developed new strength. Best wool sold up to $1.98, while good Geelong and Melbourne combing wools rose to $1.88-$1.95. Top making wools, slightly defective, were bought at prices ranging from $1.75 to $1.82. New world records in wool values were established. Frank B. Windeler, British agent, shortly afterwards announced that acting under suggestions from London no more price catalogs of Australian wools would be issued.

The wool administration took a step further in control by asking for the privilege, owing to various packings of same designated grades, of passing on all importations of so-called 40s and 58s. It was not the Government intention, so it was explained, to take these wools unless it was found that they had been improperly classed. The reason for this requirement very evidently was to prevent any dealers from evading, by false packing, the Government option on 44s and 56s.

Heavy sales of territory wools took place near the end of March, one concern alone selling 2,000,000 pounds fine and fine medium wools on clean basis at from $1.65 to $1.75. Knitters were especially active and reported as taking Cape wools quite freely.

In April wool valuation committees became very busy. It was estimated that the Government option would cover fully 50,000,000 pounds and that at least two-thirds of this amount was of the grades desired. Active trading in South America came to a standstill though the market there retained its strength. Fine scoured Capes were in good demand.

The Government became very urgent in taking over its optioned wools and heavy losses for importers were reported. The Government announced that it would not take over South American 5s and that options on fine wools would be limited to those purchased before April 1. An active business in pulled domestic wool occurred. One lot of 3,000 bags of B supers was sold on a clean basis of $1.50. Eastern A supers were quoted at $1.60 and fine A supers at $1.70.

BOSTON AGAIN OFFERS WOOL STOCKS

General conditions became so complicated and unsatisfactory that the Boston wool trade, for the third time, offered its entire stocks, here and to arrive, to the Government. This occurred at a meeting held Friday afternoon, April 5. The immediate effect of this action was to bring all trading to halt and the market assumed a waiting attitude. At a subsequent joint meeting of the executive committee and the war emergency committee it was declared to be "the sense of the meeting that until a definite reply is received from the Government, with reference to its option of April 5, 1918, that the Boston wool trade refrain from buying, offering or selling any wool in the United States; refrain from taking consignments of any wool in the United States; and anticipating the Government requirements for those wools we recommend and encourage buying in foreign countries, bearing in mind the Government option of Dec. 15, 1917; but the said foreign purchases not to be offered or sold until a definite reply is received from the Government in reference to its option of April 5, 1918; and that the entire wool trade, operators and manufacturers of the United States are invited to join in the spirit and intent of this resolution." Auctions of remainder of British owned Australian wools were called off owing to the "unusual conditions existing in the American wool market at the present time and in order that the United States might not in any way be embarrassed in its plans."

The first reply of the Government to the wool trades offer of its stocks caused considerable consternation. It was to the effect that the Government considered prices obtaining April 5, as too high and that, rather than pay those prices the Government would, if necessary, commandeer the wools at July 30 prices net, unless voluntarily offered on that basis and it was understood the Government's plans were to extend so as to take in the entire 1918 clip. It was believed, that the administration would, so far as possible, conserve civilian manufacturing interests. The interests of wool growers also were to be handled fairly, their consignments being guaranteed at fixed prices based on value at Atlantic seaboard.

There was a very general disposition on the part of the wool dealers to look at the matter calmly, but they saw clearly that only those houses with the requisite organizations could hope to make a success of business under such conditions. The dealers, however, very generally acceded, both in letter and spirit, to the Government proposals and awaited further developments and details of complete control. The big problem, it was considered, related to the handling of fleece wool when flocks are small and the wool clip is generally picked up in less than carload lots.

WOOL MARKET A GOVERNMENT SATELLITE

The wool market by this time had become a mere satellite of the Government. The wool administrator took over two additional floors for greatly increased staff. The smaller dealers, especially those handling pulled and scoured wools, showed great uneasiness for apparently no protection had been made for their interests by the Government plan as understood. Conditions in the wool trade bordered on the chaotic and dealers apparently gave up all idea of making any profit in handling the new wool clip. About this time the Government regulations for handling the wool clip of 1918 were in the hands of all interested parties. Interpretations were being sought and various sections of the country were making strong appeals to the wool section of the War Industires Board to have this, that, or the other city, designated as a distributing center. Approved distributing centers for fleece wool at this period were: Boston, New York, Philadelphia, Chicage, St. Louis, Detroit, Louisville, Baltimore and Wheeling. Distributing centers for territory wool were as follows: Portland, Chicago, New York, St. Louis, Boston, and Philadelphia. Other centers were approved as the weeks went by.

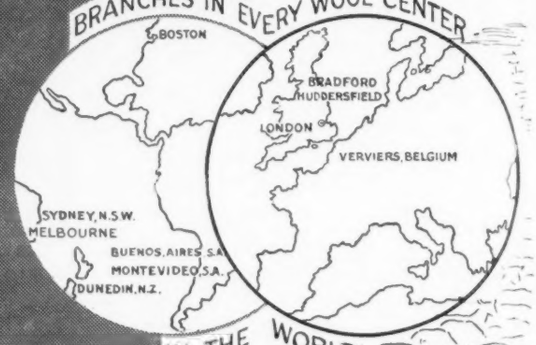
The chief features of the Government regulations for handling the wool clip were as follows: "The Government shall have a prior right to acquire all of the 1918 wool clip or any portion thereof, which it may require, at the prices fixed by the War Industries Board. The remainder will be subject to allocation for civilian purposes under the direction of the War Industries Board." The necessities of the Government are such as to require the use of all existing agencies for concentrating

H. Dawson & Co

WOOL BROKERS

200 Summer Street
Boston

Head Office
London



Correspondence solicited

Branches in every
Wool Center
in the World

the wool near the centers of consumption. Approved dealers shall be those authorized by the War Industries Board to handle wool, who are located in the distributing centers and who buy from growers direct, through agents, or from country merchants; and also those dealers authorized by the War Industries Board who are located in wool growing districts and who buy direct from growers and resell or consign to the dealers in distributing centers.

"Approved dealers shall be entitled to gross profit in no case to exceed 1½c. per pound on the total season's business, this profit to cover all expenses from grower to loading wool on the cars. The grower shall receive fair prices for his wool based on Atlantic seaboard price as established July 30, 1917 less the profit of the dealer, as stated above, and less freight to seaboard, moisture, shrinkage and interest.

"On consignments forwarded to distributing centers the prices to be paid for the wool to the approved dealers shall be those established by the valuation committee on Atlantic seaboard values of July 30, 1917, to which shall be added a commission of 4 per cent. to be paid by the Government, if bought by the Government, or by the manufacturer to whom the wool is alloted for other than Government purposes. This commission is to include grading and other expenses of handling. On territory wools sold in original bags the compensation shall be 3 per cent. of the selling price. If the wool is graded commission shall be 3½ per cent. of the selling price."

This important document, historic now in its character, was issued by Louis Penwell, chief of wool division of the War Industries Board. Pulled wools, not mentioned in this document, were the subject of a special legislation, which provided that "consignees of pulled wool shall be entitled to receive a commission or sum equal to 2½ per cent. on the selling price." Pullers were to deliver their wool to distributing centers, the freight on the wool from point of origin to the Atlantic seaboard market being a charge against the wool and a statement was to be sent to the wool administrator, not later than the tenth day of the month of wools pulled during previous month. On all pulled wool, which had cost the owner prices in excess of July 30 quotations, the Government pledged itself to pay, on account of over-head and recognized excess value of spot wools, an amount of 5 per cent. above cost on all grades.

Summer Street now took on new life. The various rules and regulations were thoroughly studied and the solicitation of consignments began in good earnest. The wool trade determined to make the best of conditions which, at their highest appraisal, offered very little to men accustomed to do business by usual standards. It seemed, however, evident that the Government with the winning of the war as the great object in view, was not disposed to go out of its way to deal tenderly or generously with the wool trade. There was a feeling in some quarters that the wool growers were receiving greater consideration than the wool dealers.

FURTHER DEVELOPMENT OF CONTROL

Following rapidly along came full details of wool issue prices and conditions made public by wool distributor E. W. Brigham, with offices on Summer street. Terms and prices applied only to wools to be used on Government goods. Holders of Government contracts were to apply, giving full particulars, for allotments necessary to complete their contracts. No provision was made for civilian allotments, and the system continued in full effect right up to one week after signing of armistice in November, after which time civilian manufacturers were permitted to take wools. The issue prices, still on Government levels, were so high that only a comparatively small amount of wool, and that of the finer variety, was taken up to the end of the year. The Government took wools over at one price, July 30, either net or less 5 per cent., and alloted them to manufacturers at other and higher prices, in which were included commissions to dealers, administrative overhead and probably some little profit.

Rules and regulations regarding 1918 clip were so obscure in some places and ambiguous in others that a lengthy questionnaire was addressed to Louis Penwell by A. C. Bigelow, president of the Philadelphia Wool and Textile Association. The wool chief's reply was equally lengthy, but apparently cleared up some of the points at issue.

Boston began to be somewhat disturbed at this time. It was thought possible that, in view of the many distributing centers, its prestige as the chief wool center of the country would disappear. Government control becoming more complete each week, stifled individual initiative. A wool market, in the old sense, there was no longer, a free market for noils being the only thing left.

SHIPPING FACILITIES LIMITED

In the foreign markets Cape wools were easy but there was little business. The British Government was not encouraging foreign buying and shipping facilities were under rigid control. Cape prices were on a level that would permit their profitable importation if shipping could be procured. Japanese buyers were taking up choice lots and were not very particular as to price they paid. In South America prices were tending downward. A large accumulation of wool was reported with little buying, except from French representatives. Shipping facilities were under control of the United States Government. In Boston 35,000 bales of Australian wool had arrived and were awaiting valuation.

A further development in complete control was seen in the appointment of E. W. Houghton as head of administration pulled wool department, with offices on Summer street. Boston houses were now striving strenuously after consignments, but the opinion held pretty generally was that concerns with large overhead expenses would have quite a task before them to break even. San Angelo and Kerrville had been added to the list of distributing centers, placing two thorns more in the side of venerable old Summer street. The small farmer and country dealer were experiencing difficulties in working out details under the control system and were continually running up against snags uncharted in the Government regulations.

RESTRICTIONS BECOME SEVERER

The administration at no time gave any evidence of making things any easier for the wool trade. Every pound of wool that could be produced or brought into the country would be required for military purposes. The light began to fade out of the civilian sky. All interpretations and explanations vouchsafed by Government wool officials in whatever branch were military in their brevity and strength; there was no sense of concession to mere wool merchants anywhere displayed. Pressure began to be exerted to have grading of wool conducted more especially from the standpoint of military needs. It was pointed out that when the Government named a commission of 4 per cent. on fleece wools this was intended to cover complete and satisfactory grading; quarter and three-eighths blood wools must be separated thoroughly and medium wools sorted out in territory consignments. This emphasis on grading, as was found later, greatly retarded the work of wool allotment, also, incidentally, making it more and more difficult for small houses to do business.

At the close of June independent buying in South American markets was at a low ebb and a probable wool shortage loomed up. In its exaggerated form it was thought to foreshadow an actual shortage of all wools; properly understood, it referred rather to a scarcity of the low and medium wools required for Army fabrics, hence the insistence on the grading out of these wools. The idea that any dealer could get by with an original bag and 4 per cent. was pronounced anathema. Manufacturers at this time were reported dissatisfied with allotments, which were showing greater shrinkage than that which furnished the basis for price paid.

Technical questions relating to receipt and disposal of the 1918 clip were now pretty definitely settled. Dealers looked for loopholes and sought concessions, but with no success whatsoever. Government regulations regarding grading had been further elucidated. Blending of similar wools from same sections was allowed, lots of above 300,000 pounds being requested. Special care was to be taken in keeping grades separate, especially on the line between half and three-eighths blood. Manufacturers were much in evidence in the wool distributors' office during July and medium wools were in very strong demand. Foreign markets were quiet. There was but little American buying in the Argentine. Japanese imports from the Cape were reported large, rising from 100 bales in 1915 to 15,000,000 pounds in 1917. Advices also indicated importation by the Japanese Government of 24,600 of Australian wools at prices quoted them by the British Government last November.

Two pounds of "White House" wool auctioned off on the Common were bought by the president of the Boston Wool Trade Association for $2,000, enclosed in a case and placed on the wall of the Association rooms, 246 Summer street.

GOVERNMENT REVOKES IMPORT LICENSES

As to the Government attitude on foreign wools, it now became clear that it would make no pledge to take such wools unless it required them, and this in the last analysis was not to be determined until the wools were on the spot. The appointment of A. M. Patterson, late head of the Textile Alliance, as chief of the foreign wool department, was thought to foreshadow some kind of an international understanding regarding the control of the world's wool in the interests of the Allies.

Government activities in the market had now almost completely displaced individual enterprise; foreign importations were discouraged and buyers of South American wools, outside specified grades, were liable to have their purchases held up for months and finally left on their hands.

The whole matter came to a head by the issue of new rulings giving the Government complete control of foreign wools and bringing to an end, after July 28, all buying and shipping of wools from Uruguay, Argentine and South Africa. This ruling, which forged more completely chains of control over the wool market, omitting the preamble, is as follows: "The War Trade Board, after consultation with the War Industries Board and the War Department, have adopted the following ruling: All outstanding licenses for the importation of wool from Uruguay, Argentine and South Africa are revoked as to ocean shipments from abroad after July 28, 1918. Hereafter no licenses for the importation of wool from the countries above referred to for shipment from abroad after July 28, 1918, will be issued for the remainder of the present calendar year, except to the Quartermaster General of the United States."

Movement in the domestic clip at this time showed marked acceleration. Rules regarding grading, however, proved very onerous, and it was estimated that 500 to 600 per cent. more grading would be required and that Western distributing centers would be seriously embarrassed. Approved dealers were allowed to buy under license the following off wools at the following Atlantic seaboard prices: Montana tags 22c., fleece tags 25c., corral sweepings 7c., territory dead 45c., fleece dead 55c. The bulk of the new clip was now supposed to be in dealers' hands. Manufacturers became very pessimistic regarding outlook for allotment of wools for civilian purposes. Their fears were well justified as the weeks moved along. When the armistice was signed in November, allotments for civilian purposes had long since ceased.

APPOINTMENT OF BUYING SYNDICATE

The order of the Quartermaster Genera appointing a buying committeee or syndicate, of five well known houses, to purchase wool on behalf of the Government from South America raised a veritable storm on Summer street. Smaller houses felt that stern military demands for wool would push them to the wall. The syndicate was very generally regarded as a favored trade organization, assured against loss and with substantial profits guaranteed. Houses which had, through the years, built up strong foreign organizations felt especially aggrieved. It was recognized that nothing could be done to change the Government policy and it was considered almost unpatriotic to make any strong protest. But the feeling became so intense that finally individual houses registered their opposition to the scheme asking either that the syndicate be enlarged, so as to include all houses that had South American organizations, or that the plan be dropped. The net results of the ebullition of feeling which lasted for weeks, was the inclusion within the syndicate, of one of the largest houses in the trade. In the meanwhile the commission had been buying wools suitable for military fabrics and as a concession to the necessities of those concerns who had purchased wool in the Argentine before July 28, new licenses for import were issued to take the place of those revoked on that date.

Grading and shipping conditions as related to the domestic clip were now about a month behind normal schedule. Good loft help was quite scarce, even at very high wages. The wool dealers everywhere evidenced high courage and much resource in grappling with the many problems forced upon them by the method of Government control. The various departments of the Quartermasters' Corps were begining to work along with smoothness and efficiency.

SCOURING *and* CARBONIZING

1822 E. Venango Street

PHILADELPHIA

The issuing of bulletins from the local administrator's office became more restricted as the organization lost its civilian characteristics and became merely in a division in the Quartermaster's Department. At this time Lewis Penwell, chief of the wool division, instructed the approved wool dealers of the country that their books were to be always open to Government inspection and that, if at the end of the season's business it was found that their profits were in excess of amount designated in regulations, such excess would be disposed of as the Government should decide. Until that time dealers should not undertake to make any adjustment with the grower regarding such excess. It was also stated by the same authority, that the Government would require and purchase the entire domestic fall clip of mohair. Wool congestion now began to be apparent in Boston and storage space became more and more taxed as the weeks went by.

In South Africa the all absorbing question was the possibility of the Imperial purchase of the 1918-19 clip. Strong and concerted efforts were made to bring into a line the growers, brokers, and various foreign elements, in order that the Imperial Government could be approached with some hope of success. It was generally contended that without Government control, prices would be seriously affected and large quantities of wool go into storage. Arrangements had been completed allowing Japan to take 250,000 bales of Australian wool, and this deal it was considered would remove the Island empire, as a competitor in the Cape market.

Greater disturbance was now being experienced by civilian manufacturers. A statement by Louis Penwell, that the combined Army, Navy and Red Cross needs would amount to 900,000,000 pounds of wool, while the domestic production would not exceed 280,000,000 pounds added to the gloom, which was further intensified by a statement attributed to General March, that the Government intended to put the whole civilian population on shoddy. Manufacturers were not altogether satisfied with valuations placed on allotted wools; shrinkages, they claimed were figured too low; as opposed to this a well known member of a valuation committee asserted that, as a matter of fact, the manufacturers were buying their wool better than ever before and as to shrinkage, they had the advantage of the judgment of several men instead of one, as under the old regime. August ended with the wool market ruled from Washington. The Government organizations were all busy but had nothing to say, no news to impart, little to suggest. They represented a new industrial order —how permanent no one could say—and were independent of civilian support or approval. There was no world shortage of wool, but there was a serious shortage of shipping. Australia, for example, opened its new wool year June 30, with a carry-over of 1,200,000 bales.

WASHINGTON MOHAIR CONFERENCE

September opened with a general lassitude apparent in the wool market. The mohair situation now assumed additional importance as being the one fiber for which there was a free market. A number of dealers interested in this commodity went up to Washington, along with Ludwig Eisemann of the wool section, to confer with the War Industries Board. Opinions were about equally divided as to whether the Government would take over the fall clip or go no further than to fix maximum prices. In later conferences with Louis Penwell they were told plainly, that while the Government wanted mohair it had no desire to take it from them under cost of production—which was stated as being around $1.00 per pound —nor would the Government pay high prices. A free market would therefore be allowed until further notice.

Manufacturers not entirely satisfied on question of shrinkage of wools received asked representation on valuation committees. Nothing, however, came of this proposition. The woolen and worsted spinners formulated their complaints and submitted them to the War Industries Board only to receive in substance, the reply that the Government did not guarantee shrinkage but merely offered wools on its own terms, which were thought to be reasonable enough and manufacturers might take the wool or leave it. The setting up of so many distributing centers throughout the country had apparently not greatly interfered with Boston's prestige as chief wool center, statistics at this date showing receipts of domestic wool as 146,-146,073 pounds as compared with 151,-890,195 pounds same period last year. About this time Quartermaster-General Wood announced that Government wool required for year ending June 30, 1919, including Red Cross supplies would be equal to 283,000,000 pounds on scoured basis.

GOVERNMENT RELINQUISHES SYNDICATE BUYING

Opposition to syndicate buying in South America had become more acute and some of the smaller houses made strong protests, receiving some encouragement from the reply of the Quartermaster's Department to the effect, that the buying of foreign wool was receiving its serious consideration. In view of the large Government wool requirements the woolen section of War Industries Board announced to the trade that while no shortage of woolen cloth or clothing was to be feared there would be no free surplus of wool available and that therefore, no allotments would be made for civilian purposes.

The dissatisfaction of the wool trade with the syndicate method of buying South Americans evidently convinced the Government that some other method was desirable and the relinquishment of the plan was conveyed to Harlow Breed & Cooley, one of the protesting houses, in the following brief statement: "The Government is about to make arrangements to send its own buyers to the River Plate." A little later it became known that the new buying commission, displacing the syndicate, was to be headed by Abraham Koshland, president of the Wool Trade Association, with John Wilcock, of Francis Willey & Co., as buyer. The old syndicate it was understood was to continue operations until the buying commission reached its destination, when the syndicate would automatically go out of business. Under this new plan, if there were any profit in buying wool, the Government would receive it. Prices were reported strong in Buenos Aires, and although competitive buying was thus eliminated, there was, nevertheless, no reason for supposing that Argentina growers would place their wares on the bargain counter.

As to domestic consignments, big houses were trying to keep their organizations together, though under the impression that the 3½ and 4 per cent. commissions allowed would not place much of a balance on the right side. Cape mohair was reported as holding firm at strong prices, growers believing that the fiber had a long way to go before reaching the level of true value. American buyers, it was understood, were operating freely with shipping conditions almost demoralized.

Federal wool control now fully established was seen to be full of details and of growing complexity; it was regarded as an immense proposition, which had taken over all trade difficulties previously existing and gathered to itself many new ones. The personal touch so valuable in business had disappeared and the great organization was an exemplification of the general belief that corporations are soulless.

WOOL GROWERS VISIT MARKET

Domestic wool growers, who were receiving, in the opinion of the trade, fairly satisfactory prices, now became uneasy at what they considered the slow rate at which appraisals were being made. Not more than one-third of the clip had passed through the valuation committees. At this junction F. J. Hagengarth, of Idaho, president of the National Wool Growers' Association, made a tour of inspection of the wool market and also conferred with the various Government officials in this city. Reporting his visit, on his return, he evidently was well satisfied with the way things were going and advised the growers that they could depend upon receiving a square deal from dealers and officials alike.

In the Cape market American and Japanese buyers were understood to be competing strongly for desirable wools under the impression, later proved baseless, that the Imperial Government would take over the entire clip.

Prospects regarding civilian allotments were somewhat depressing. The distributor was allotting at this time about 6,000,000 pounds of wool weekly all for Government contracts. Mr. Penwell's estimate that 900,000,000 pounds of grease wool would be required for the year ending June 30, 1919, was considered excessive, but the authorities were evidently determined to play on the safe side and conserve all wool for military purposes.

A rumor on the street that the Quartermasters' Department had purchased 200,000 bales of Australian and New Zealand wools, received general credence. Later in the year the report was confirmed and the total amount placed at 100,000,000 pounds. This wool was to be taken over, so it was understood, at British issue prices. The imperial Government took the entire Australian clip for the period of the war and one year afterwards at 31 cents. The British issue price to its own manufacturers was based upon c. i. f. plus profit. The exact figure has not been made public.

MANUFACTURERS' STOCKS DWINDLE

Report of wools held by dealers and manufacturers compiled by the Department of Agriculture showed that manufacturers, a few weeks back, held about 200,000,000 pounds of wool, tops and noils. Consumption reports indicate approximately 55,000,000 pounds monthly. As allotments were being made at approximately 20,000,000 pounds monthly, it was evident that the woolen and worsted industries were living on their own fat and in a very short time would be entirely dependent upon Government allotments. The secretary of the National Wool Growers' Association estimated the 1918 clip at 290,000,000 pounds, appraised at approximately 60 cents per pound. Thus the spot appraisals indicated that American wools were on the average, and in the aggregate, about 100 per cent. higher than Australian. With a free market mohair prices had been rising rapidly. Texas mohairs purchasable before the Washington conference at 58c. and 66c. were now selling at 86c. and 88c.

South American wools bought by late syndicate were now arriving in large quantities, and the domestic growers having become reconciled to Government control, asked that the War Industries Board fix the price of wool during the period of the war and for one year afterward. A study of import figures for the first seven months of 1918 indicated that imports of South American wools had fallen off very considerably, while Colonial wools showed a marked increase. Total Argentina and Uruguay imports indicated the receipt of 139,696,800 pounds, a decrease as compared with same period last year of 48,980,928 pounds. Australian, New Zealand and Cape wools for same period indicated receipts of 65,020,575 pounds, an increase over last year of 44,145,934 pounds.

While Summer street had all along been acquiescent in the various changes that had converted a free into a controlled market, yet under the surface troubled currents were moving. The Government method of handling the 1919 clip had apparently turned out more satisfactory to the growers than to the dealers. It was considered that the commissions paid by the Government were too low and that with heavy overhead expenses, caused in part by excessive grading demanded, it was doubtful whether any but a few of the larger houses would come out without loss. The Boston wool trade therefore in November appointed a special committee to look into the matter of the cost of handling the 1918 clip. The head of the committee was Arthur Gill of Dewey, Gill & Co., but to date no report has been made.

The British wool situation from the civilian standpoint was reported as far from satisfactory, but manufacturers engaged in export business were a little better treated when wool allotments were made. In domestic circles the quarterly wool report showed smaller holdings by dealers and manufacturers, figures as of Sept. 30 indicating that wool stocks were lower by 182,000,000 pounds than in Sept. 30, 1917. Boston, however, was congested with wool, so much coming in, so little comparatively going out. Warehouse space everywhere was at a premium. Figures, fairly reliable, showed 65,000,000 pounds more wool in Boston up to date than for same period of last year.

BEGINNING OF UNSCRAMBLING PROCESS

The question that was to occupy the minds of dealers continuously now came to the fore in the days when peace seemed near—would the Government take over the entire 1918 clip? The Government had never made any definite promise, the original rules and regulations going no further than to state that "the Government shall have the prior right to acquire all of the 1918 clip or any portion thereof which it may require." This left the question in the air and the dealers fell back on the principle that the taking of the full amount was a "moral obligation" incumbent upon the Government. When the armistice was signed the wool market, more affected perhaps than any of the textile markets by rigid Government control, immediately faced radical adjustments. The two great questions that faced the market were—Will the Government take the balance of the clip

PRODUCTION 9,000,000 LBS. PER YEAR

Meet Competition—*Use*

GRAVES QUALITY

GARNETTED STOCKS, COTTON,
WOOL and MERINO

Manufactured by

FRANK B. GRAVES CO.

ALBANY, N. Y.

Also Dealers in All Grades of

COTTON, WOOLEN and HOSIERY WASTE,
KNITTING MILL CLIPPINGS, etc.

SAMPLES FURNISHED ON REQUEST

yet unvalued? And what will the Government do with its immense wool stocks estimated by the Quartermaster's Department at about 400,000,000 pounds? No immediate or definite answer was given to these questions. The Quartermaster's Department had a problem of no small magnitude on its hands. Adjustment factors were now dominating the market. There were still large stocks of unbilled wool in dealers' hands and the disposal of the Government stocks became the question of greatest importance to manufacturing interests in view of the fact that Great Britain on account of low wool and manufacturing costs, was in a good position to enter our markets.

A very formal routine annual meeting of the Boston Wool Trade Association resulted in the election of Samuel G. Adams, of Brown and Adams, as president. Active members were reported as numbering 116 and associate members 261. The meeting was disappointing to the wool trade generally, which had anticipated some discussion of the questions in which the trade was so exceedingly interested.

The first direct intimation that the Government would live up to its "moral obligations" was conveyed in a bulletin issued by the Government Administrator about the middle of December, in which all concerned were informed that an inventory must be placed with the Administrator showing in detail just what wool of the 1918 clip remained to be valued. No wools would be taken over by the Government unless ready for valuation and delivery not later than March 1, 1919; no wool from Argentina, Uruguay or South Africa which came under notice of July 24, 1918, would be accepted unless presented for valuation prior to Jan. 1, 1919; nor would the Government take over any wools that either then belonged or had belonged to manufacturers.

A little later a decision on carpet wools stated that the Government option on Class 3 wool, would be exercised on such wools imported on or before Nov. 21 and not afterwards and that all wools not so taken were to be considered released. As to pulled wools the Government would not take any pulled after Dec. 31, even though skins were contracted for prior to that date.

This intimation of the Government's policy cleared the situation and furnished a relief to dealers with large stocks. With the probability that the various organizations connected with the War Industries Board would go out of existence early in the new year it was a consolation to know that the permanent Quartermaster's Department had the question in hand and would see things through.

The amount of wool in the United States was still a figure to conjure with. The generally accepted figures for Government holdings was 400,000,000 pounds. Later in December an authoritative statement was given out stating that total holdings were 325,000,000 pounds, not including 100,000,000 pounds Australian, which might or might not be taken over. It is now generally understood that our Government is willing to leave this wool in the hands of England and the English Government for its part would be willing to negotiate with any organization capable of handling the matter. How much free wool there was in the country was anybody's guess and estimates varied from one hundred to three hundred million pounds. Manufacturers' stocks of wool for Sept. 30 were reported by the Bureau of Markets as amounting to 101,899,776 pounds, presumably all free, that is, not Government owned.

GOVERNMENT ANNOUNCES WOOL SALES

The announcement by the Government that it would proceed to auction its wool stocks and setting Dec. 18 as the first of a three days' sale of 16,000,000 pounds of wool was an announcement of greatest interest to growers, dealers and manufacturers alike. This offering included 4,000,000 pounds of fine foreign wool, chiefly Australian; 3,000,000 pounds South American wools, 1,500,000 pounds scoured wools, 7,500,000 pounds domestic greasy wools and 500,000 pounds of tops.

As to prices to be obtained, opinion was very divergent, but the general feeling was that the first auction would not go very far in the way of establishing a stable level of prices. This prediction was subsequently found accurate. The auctions were, on the whole, a disappointment. Australian wools brought strong prices, in some cases higher than Government issue prices, but on the average they were about 5 per cent. below issue prices. Some of the finer domestic grades came out strong and choice quarter-bloods sold above issue prices. South American 3s sold at issue prices; 4s, 5c. below; 5s were almost entirely neglected. Texas grease wools, pulled wools and three-eighths and quarter-blood tops were withdrawn in large quantities; in most cases no bids were received.

Very few dealers or manufacturers could be found who were pleased with the auction. It seemed like an experiment that failed, and while it was stated as the Government's intention to offer for sale in January only those wools which sold freely at previous auction, it is the general feeling that a stable basis of wool prices is as far away as ever. The Government is criticized somewhat severely for its merchandising policy. It seemed to be dickering for a cent or two a pound like a small dealer, with no sort of a conception of the large issues at stake in the textile industries of the country.

Slender Year in Carpet Wools

Sources the World Over Except China, Practically Dried Up—Review of Odd Situations Produced and Their Effects

VIEWED from any ordinary angle of business interest 1918 has been a slender year in carpet wools. While it was neither wholly satisfactory nor unsatisfactory to dealers and importers, the extraordinary period of eight months from April to December, broadly speaking, the trade was absolutely in the hands of the Government, is scarcely susceptible of accurate analysis at this time on that point. It has been a decidedly broken year, and is certainly the only one of its kind.

The first quarter of the year was a free market in which prices ran from 10 to 15 per cent. above the level untimately adopted by the Government as the schedule on which operations were conducted on commissions. The Government maxima thus established values on the scale of values ruling at the middle of the year 1917. In the last month the lifting of Government options opened up a free market again, theoretically. Practically, the future depends upon a lowering of prices through the auctions of the current week, so that the first month to six weeks of a reconverted market which correspond to the closing weeks of the year under review, are troubled and blankly inactive.

ODD SITUATIONS ABOUND

In the odd situations with which the twelvemonth is replete, there is a phase that bulks large yet does not alter the estimate of leanness applied by those who consider initiative and generous profits essential to a successful year. For in no respect has the turnover of carpet wool been meagre. Statistically, when official records are available again, bulky consumption figures are resolutely certain to show. From general knowledge in the trade, even in the unavailability of complete custom house entries of record, it is evident that imports ran heavy through the year whether sold to arrive in a free market and delivered to the purchasers, or whether taken over by the Government. Operations were active in China and Africa, and transportation, from the Orient at least, came to a good situation during the year.

A great peculiarity about the heavy consumption of carpet wool in 1918 is that a comparatively small amount of the material processed went into other than war manufactures. Better edge wools for better than carpet purposes were so heavily drawn upon by this freakish condition in wool manufactures, that it is estimated, now, at the close of the year, on the eve of the withdrawal of the Government from its position as keeper of the wools, that low grades heavily overbalance current stocks in mill and Government warehouses.

BIG SWING IN WORK

The trend of carpet mills to war work begun in 1917, continued throughout 1918. Alexander Smith's Sons & Co. installed 98 automatic looms in their print mill in place of carpet looms that they placed in storage for the period of the war. This action by a leading factor is typical of others. A Massachusetts mill stripped a whole department, similarly, installed frames and spun Government yarns. In general, carpet mills swung their productions far afield from peace-time products. They made army blankets and army duck, principally. Since, relatively one-half their production used cotton for military uses instead of wool, the normal consumption of woolen fibers would seem to have been reduced 50 per cent. But, owing to intensive production schedules, with night and day shifts for a period of approximately a year, the actual consumption increased to such a volume that the proportion does not hold. The variable resulting might come so high that the actual carpet wool consumption would very closely approach, or might, in point of fact, exceed, the totals of a normal year. For, independent of the bulk consumption in strictly carpet mills, the factor of consumption of better edge carpet wools on cloth looms in men's wear and dress goods mills must needs be incorporated in any consideration of the draft made on visible carpet wools in the United States in 1918. Consequently this would include those wools sold to arrive in the first quarter of the year as well as those wools that passed into the Government rationing system in the period from April to December.

The situation reposes for the moment, therefore, quite largely in the realm of incertitude. It has been stated recently that the Government's stock of carpet wools is 7 per cent. of its holdings, or about 20,000,000 pounds. For carpet mill operations of normal times this would probably approximate a three months' supply, in case that a redistribution could be accomplished to blend, in a resumption of carpet and rug output, smoothly and suitably with mill stocks of other grades accumulated in the period of special war productions.

RISE IN SILVER

Indications early pointed to 1918 as if to be one of the poorest in carpet wools. Carpet manufacturers going more steadily on to war work were conservative purchasers of raw materials. Importers as well as consumers of wool were far from confident that they were to witness an improvement over 1917 in view of the fact that the carpet and rug demand was one of the first to go flat in the rising sweep of civilian retrenchments. Importers who continued to make commitments did so in a state of uncertainty, and dread. Prices continued to rise because silver continued to do so under the stimulus of war. The Chinese tael became sweepingly inflated due to the hoardings of coin, probably, and, on wool consignments, exchange up to $1.22 has been paid. Wools were billed up in consequence and soared, for this market, until the Government prices set limits to them. Chinese wools, fortunately, kept on coming to this market through a resumption of buying and importing them scoured. The Government made a liberal rating on scoured China wools and this induced heavy commitments. Importers therefore made contracts far ahead with Chinese scouring plants, an arrangement that brought joy to those operating in this way, and gloom to others who found the plants sold up when this possibility came to their attention. About mid-summer when the Government was forced to distribute coarser wools on account of its blanket and cloth requirements, the importations of scoured China wools claimed acute attention, on account of sweeping demand for better edges. The saving of freight space, by the shrinkage at point of origin, almost doubled imports and the advantages appeared very large and valuable to the emergency that seemed to be stalking grimly and speedily on. It is not certain that the ventures have turned out completely, or will turn out completely, an unmixed blessing. Carpet wools were specially released from option in December, except so far as entered, and should there be too extraordinarily large an amount contracted in China, embarrassments may follow in the wake of the Government withdrawal. Prospects of a large carpet consumer's demand in the near future, however, and a legislative move to impose equalizing duties may help the situation to a quick and easy stability on new prices that should shortly be established in the current market.

SOURCES THAT DRIED UP

Aside from China, the Cape and South America in a lesser degree, many sources of carpet wool imports dried up during the year. Except for China, South American and a few Capes foreign wools, imports were at a standstill. The Russian supply was entirely demoralized in the collapse of that nation. Exports were stopped and it

LARGEST RECEIVERS OF WOOL IN THE WEST

B. Harris Wool Co.

ST. LOUIS, MO.

Boston Office:
250 SUMMER STREET

Philadelphia Office:
121 SO. FRONT STREET

Fleece WOOLS

Territory WOOLS

Original and Graded
All Wools Sold on Eastern Terms

Mill Delivery, No Freight or Drayage

Swift & Company

Pulled Wools

Standard-Uniform-Dependable

World's Largest Producers

Boston Chicago Philadelphia

is understood that where there were shearings on the steppes the clips were taken and rudely spun by peasants for the immediate use of their soldiery and themselves, also flocks were decimated by disease and by foraging for food. Ship shortages on account of submarine warfare in the Atlantic stopped wool-carrying effectively. Scotch wools were stopped from coming and so were Aleppo, Angoras, Awassi, Bokhara, Khorassan and Mongolian. Manufacturers almost to a unit substituted other wools wherever possible, and when the production possibilities narrowed the supply was pieced out with reworked wool and cotton as directed in Government specifications.

Before the full effects of Government rationing came, operations were conducted along narrow lines by carpet manufacturers. Carpet products went to prohibitive prices, and it is a matter of comment that the big carpet auctions usually held in May were hardly missed, so absorbed were trade interests in the fever of war. Not more than a single factor of importance kept up to its civilian demands.

There is only one set of prices that count during the year. These are the Government prices on the basis of Atlantic Seaboard markets, as follows:

CARPET.

Description.	%	July 30, 1917. Grease Price.	Basis ScD.	ScD.
Handshaken fleece, China No. 1, white sining	40	43c.	72c.	80c.
Willowed, China No. 2, white sining	35	38	59	65
Handshaken fleece, black sining (super)	42	39	67	76
Handshaken fleece, grey sining	42	39	67	73
Handshaken fleece, stained sining	46	36	67	72
Willowed, China No. 2, grey	35	37	57	62
Handshaken semi-Cbg., China No. 1, white (good)	48	38	73	85
Government type, white szechuen	..	..	..	75
Sundried, China No. 1, white szechuen	35	41	63	80
Sundried, China No. 2, white szechuen	48	28	54	62
Sundried, China, grey, szechuen	39	36	59	68
Washed, China No. 1, white ball super	9	$1.00	$1.10	$1.10
Government type, ball China	25	71	95	95
Willowed, China No. 2, white ball	33	38	57	59
Willowed, China No. 1, grey ball	25	65	87	90
Willowed, China No. 2, grey ball	35	36	56	56
Willowed, open ball	42	45	77	85
Handshaken best unassorted fleece (A)	48	36	70	82
Handshaken Med. unassorted fleece (C)	47	35	66	80
Handshaken low unassorted fleece (D)	46	33	61	61
Willowed best white filling (A)	37	43	68	80
Willowed good white filling (b)	36	42	66	75
Willowed fair white filling (C)	36	39	61	61
Willowed low white filling (D)	35	37	57	57
Willowed short white filling (cuttings)	28	33	46	52
Willowed best grey filling	38	39	63	71
Willowed fair filling	35	36	56	56
Willowed low filling	35	35	54	54
Willowed China autumn	33	43	64	70
Handshaken, China No. 1, fleecy super lambs	58	56	$1.33	$1.40
Handshaken, China No. 2, fleecy lambs	55	50	1.10	1.12
Handshaken, China No. 3, fleecy lambs	55	43	95	95
Willowed China lambs	35	71	1.10	1.15
Government type, China No. 1, woosie spring	37	40	64	85
China No. 1, woosie autumn	40	36	60	70
China No. 2, woosie autumn or spring	65	15	43	43
Washed China, Shanghai	35	32	49	55
Handshaken China, Honan unassorted	52	28	58	58
Washed Mongolian, average (Urga.)	23	52	68	78
Washed Manchurian, white (Hailar)	25	46	61	61
Washed Manchurian, grey	30	39	55	55
Unwashed Cordova, good Cbg. white	50	38	76	90
Unwashed Cordova, good Cbg. grey	50	37	74	75
Unwashed Cordova, 2nd clip white	44	39	70	85
Ecuador	70	23	77	85
Caribbean	60	26	65	75
Spanish, coarse Cbg. white	38	37	60	60
Spanish, good Cbg. white	50	37	74	82
Spanish, white mattress	22	40	51	51
Spanish, grey mattress	40	18	30	30
Macedonian, white combing	47	36	68	68
Macedonian, black combing	50	31	62	62
Oporto	60	25	62	62

Although total wool imports as well as carpet wool imports show a running decrease of about 10 per cent. as compared to the previous year, the increase of China wools was about 20 per cent. It is noted from the commerce reports that Class III wools for the first ten months of 1918 were imported to a total of 63,443,135 pounds. On including September imports only, the total from China in nine months of 1918 was 25,758,285 pounds, and in the same nine months of 1917, 21,543,624 pounds. As there are understood at the close of this year to be large consignments afloat, when the records of the year are completed, these stocks promise to be a special holding of interest in the wool market.

British Wool Trade in 1918

Civil Trade Put in Background by Necessary War Requirements

(From Our Regular Correspondent)

BRADFORD, ENGLAND, Dec. 16.

As the year 1918 closes everyone associated with the wool textile trade heaves a sigh of relief. The satisfaction felt is due to two causes. Hostilities have ceased and the outlook for the future can be regarded as encouraging. Everyone knows that the past twelve months, in common with the three previous years of war, have seen civil trade put seriously into the background. The necessity for this has been recognized, but those with any foresight at all knew that the war could not last forever, and that when it was ended the time would quickly come when civil trade would have to be resumed. Looking forward without any visible evidence of the war terminating, made it seem likely that the broken threads of trade would be very difficult to pick up. Now that there is an actual opportunity to do so, the difficulties are less real. It cannot be said that none exist, but it is felt that by putting a stout heart into the work that has to be done the actual process of transition will be got through with credit to all. The burden of the trade for more than the past year has been military requirements, and now the steps which are being taken for the cessation of these are creating an effect very similar to that of the removal of the scales from the eyes of a man who has been blind.

COURSE OF RAW MATERIAL

In normal times this was always a matter of great importance. Its significance has not been minimized by the fact that the War Office has been the sole buyer and seller of British and Colonial wools, and that the primary channels of distribution have been those connected with military orders. The selling price of combed wool to spinners and manufacturers being fixed, has eliminated almost entirely market values, and only within the past week or two has much been heard about fluctuation of yarn prices for civil trade. The War Office having carried all responsibility of wool purchase, and having had to find the money for that purpose, has meant that the capital of merchants has either been lying idle, or has been diverted to other uses. No London sales have been held, and the greatest secrecy has been preserved respecting prices generally. Perhaps this would have been borne with greater patience if there had been less uncertainty respecting arrivals, but those responsible for dealing with the information relating to the quantities of wool coming into this country from various sources have kept their hands very tightly closed. Had it not been for the strenuous endeavors of the Board of Control Wool Textile Production the quantities of tops released for civil trade would probably have been on the basis that supplies were not enough to permit larger allocations. It is a fact that the promises made respecting wool arrivals this year have not been fulfilled during the latter half of that period. Estimates were made which were regarded as satisfactory, but actual realization did not come up to these expectations though the arrivals which have actually come to hand have proved to be sufficient to keep machinery running on the most essential needs, and to-day the prospect of increased arrivals is so definite as to prevent any justifiable fears being entertained respecting the future. The balance in favor of reserves is certainly not large, but the understanding is that the trade will be able to get along fairly well with the weight of wool which lies in front of it. Early in the year expectations were raised that the quantity of wool arriving in this country each month would be 84,500 bales. It turned out in July that the quantity was only 58,857, in August 13,030 and in September 11,921 bales. That some of the information given by the statistical committee has been somewhat belated is shown in the fact that when the committee issued their report of stocks in this country at the end of November an estimate of arrivals for that month, and the previous one was made, and on the basis of that estimate it was calculated that the arrivals for the five months July to November inclusive, would be approximately 166,400 less than programme. It is obvious that a continuation of diminished arrivals would have had a disastrous effect on the trade, and it is gratifying to know that the situation presents every probability of being relieved by a greater weight of wool coming to hand during the early months of 1919.

ENGLISH WOOLS

The home-grown clip has played a very important part in supplying military requirements, and therefore deserves special mention. There is reason for saying that the total of the 1918 clip will be found ultimately to be somewhat smaller than for 1917, but practically the whole has gone into military consumption. During the latter part of 1918 some of the very lowest of the wools have been turned into civil channels, but earlier considerable weights of low wools were used in the manufacture of heavy Russian overcoating. All the Down wools of this country have been absorbed for the hosiery manufacturing requirements which have had to be filled in order to provide underclothing and other warm garments for the soldiers and sailors. In spite of its comparative smallness, too high a tribute cannot be paid to home-grown produce. It has wonderfully helped the New Zealand crossbreds, and in combination therewith has helped to produce some very durable military fabrics.

Little can be said of the course of prices for this class of produce. The table given below cannot be vouched for in every detail, and the prices given must be regarded as approximately correct. The year opened with values apparently on a reasonable basis, but towards the end of January they were advanced, the values then fixed remaining in operation through the whole year. The following are the approximate quotations:

Description.	Jan. d.	June. d.	Dec. d.
Lincoln hogs	25½	28	28
Lincoln wethers	25	27½	27½
Nottingham hogs	26	28½	28½
Nottingham wethers	25½	28	28
Leicester hogs	26	28½	28½
Leicester wethers	25½	28	28
Yorkshire hogs	25½	28½	28½
Yorkshire wethers	25	28	28
North hogs, fine	30	32½	32½
North wethers	29	32	32
Irish hogs, super	30½	33½	33½
Irish wethers, super	30½	33½	33½
Irish hogs, selected	29	32	32
Irish wethers, selected	28½	31½	31½
Kent hogs, selected	30	33	33
Kent wethers, selected	29	32	32
Half-bred hogs (Mid Counties)	29	32	32
Half-bred wethers (Mid Counties)	28½	31½	31½
Norfolk half-bred hogs	28½	31½	31½
Norfolk half-bred wethers	28½	31½	31½
Pick Shropshire hogs	33	36	36
Pick Shropshire wethers	33	36	36
Southdown hogs	34½	37½	37½
Southdown wethers	34½	37½	37½
Cheviot hogs, super	33½	36½	36½
Cheviot wethers, super	32½	35½	35½
Best Scotch cross hogs	24	27	27
Best Scotch cross wethers	24	27	27
Welsh fleeces, fine	25½	28½	28½
Welsh fleeces, deep	22	25	25
Radnors, fine	29½	32½	32½
Radnors, deep	26½	29½	29½
Scotch blackface ewes and wethers	17	20	20
Herdwick ewes and wethers	16½	19½	19½

POSITION OF TOPS

It is, of course, impossible to say as much on this topic as if the market had been free, for throughout the whole of the year prices have been fixed according to Government schedule. The fact that these prices have been advanced twice since first being fixed has done nothing to strengthen confidence in state control. When the first suggestion of an advance was made it was received by the trade with expressions of dissatisfaction, the idea being entertained by the majority that there was really no need for it, and that instead of putting up the issue price of tops, the Department could with more credit to themselves and advantage to the trade, eliminate some of the expensive organization which had been introduced for the purpose of carrying out control. Having made all due allowance for these impressions which were largely founded on fact, it must be said that the advances which were made in the issue price of tops were only in harmony with the advanced prices of all com-

WINSLOW & CO., Inc.

Commission Merchants

DOMESTIC **WOOL** FOREIGN

BOSTON
248 Summer Street

NEW YORK, 12 Spruce Street
PHILADELPHIA, 135 S. Front St.
CHICAGO, Union Stock Yards

Sole Selling Agents:
ARMOUR & COMPANY
Pulled Wools

NATIONAL DOCK & STORAGE WAREHOUSE CO.

8,500,000 cubic feet
Wool, Cotton, Fabric
and Machinery Warehouses in Boston

GENERAL OFFICES: Lewis & Webster Streets, EAST BOSTON, MASS.

Bonded and Free Warehouses

Our warehouses carry Boston freight rates on all through business consigned to us at East Boston

We handle WOOL on consignment

PROMPT HANDLING SATISFACTION GUARANTEED

modities everywhere. Whatever state control may have accomplished in the way of preventing unworkable values coming into force, it has certainly not been able to evade the operations of the laws of supply and demand, and the ever increasing uneasiness which comes as a natural consequence of topmakers, spinners and manufacturers being faced with increasing cost of production and commodities. The Department has been the owner of the wool and had it combed on commission account, combing establishments having been taken over by the Department. The authorities could not be blamed for wishing to make the combing into a profitable proposition, but as already said the fact that prices were advanced on two occasions after the first schedule was drawn up which fixed values about 3d. per pound below the open market price, indicates clearly that even a Government department has been unable to free itself from the incubus of heavy and increasing costs. The following table shows prices which have been in force throughout the past year. The first standard schedule commenced on June 14, 1917, and remained in force to the end of November of the same year. The schedule which came into operation on April 1, 1918, is still in force. When it was fixed it was understood that it would be current for four months, but at the expiration of that time it was continued for the next four months' rationing period, and was not changed at the end of November. The particulars are as follows:

	—Gov't Issue Price—	
	Mar. 31, 1918.	Today.
Description.	d.	d.
70s warp	77	80
70s	74	77
64s warp	74	77
64s	72	75
60s super	70	72
60s	69	72
58s carded	62	65
56s carded	55	58
50s carded	48	51
48s carded	42	45
46s carded	39	42
44s carded	37	40
44s prepared	36	39
40s	34	37
36s prepared	33	36

YARNS FOR MILITARY AND CIVIL TRADE

The outstanding feature of the year, one which has been prominent right up to the date when the armistice terms were signed has been the tremendous pressure on military account. This has been largely due to the fact that not only have British fighting forces had to be supplied with clothing, but also those of our Allies, and latterly the needs of soldiers from the United States have helped to augment the demand. The anxiety of the authorities all along the line has been concentrated on military needs, and the result has been that it has been exceedingly difficult for those engaged in civilian trade whose machinery could not be adapted for the manufacture of military fabrics, or to whom the call for these goods did not extend, to keep their looms and spindles running. For some time the contention of those responsible for the allocation of wool for military and civil purposes was that the total quantity was not adequate to fully supply both, or at least that a policy of strict conservation was necessary. As it was taken for granted that military needs would have to be supplied at all costs there was a strong tendency which if not combatted by other forces, would have resulted in allocations of tops for civil work being smaller than has actually been the case. Though there has been some modification of this attitude during recent rationing periods, it has been exceedingly difficult to get civilian manufacturing requirements into their proper perspective in the eyes of the Government. Woolen machinery has been most fully occupied with military work, the quantity of woolen weft absorbed in military fabrics being so large as to absorb all the output and also having had the effect of placing worsted spinners and manufacturers at a disadvantage. This has been the most real problem which the manufacturing industry has to face.

THE EXPORT DEPARTMENT

The dissatisfaction of spinners and manufacturers who have been for any reason unable to cope with business on military account has been intensified by the fact that export trade has been largely cut off. This of course has been done for war reasons and to prevent goods reaching enemy destinations, but the longer the war has continued the greater have been the civil needs of allied and neutral countries on the Continent, and the smaller the probability of any goods sent to neutrals finally finding their way into Germany. The authorities responsible for controlling the export trade have no doubt had a very responsible and difficult task, and while traders at home have recognized the necessity to exercise patriotism, those with the greatest interest in civil export trade have naturally been concerned lest their accustomed markets would be closed against them at such time as hostilities ceased. They have also had to bear the brunt of much misunderstanding and complaint, it being exceedingly difficult for customers in France and other countries to understand why they should be deprived of supplies when Great Britain practically controlled such a large weight of the world's wool production. The attitude of the authorities as represented in the attitude which trades have been compelled to assume towards their clients, has often been misunderstood. It may be expected that ultimately these clouds will be driven away. There is every indication that the gradual diminution of military requirements will be accompanied by a corresponding increase in civil production. This will afford export houses opportunity to cater for the huge textile requirements which have been held in abeyance for so long. These will now have to be dealt with in order to assist in the reconstruction of the devasted allied countries on the Continent.

England's Substitute Trade Good

Scarity of Wool Created Unusual Demands for By-Products

DEWSBURY, ENG., Dec. 16, 1918.

IN the heavy woolen district during the year of 1918 changes that have taken place have not been so marked as during the previous years. The trade, however, has not been without incident and some changes have taken place, especially in regard to raw materials. The opening of the year found all the factories busy on products required for the Allies. First one line and then another was demanded until fully 90 per cent. of the products of local mills were required for the different Allies. With the advent of the United States Army into the field, and in order to save space on the available steamers, it was decided that a variety of goods in the shape of clothing and blankets should be produced here. In addition to this the call from Italy and France came along, for because of a variety of causes they were utterly unable to produce anything near what they required. So that this district produced fully 75 per cent. of the supplies for the armies' comforts.

The Government Textile Department took control of machinery. Control and disposition of raw materials came under their purview and no machine was allowed to work on civilian goods unless a license was procured. Thus supplies were guaranteed and all the Allies have been amply supplied with all they required in the shape of blankets, khaki, blue serge, flannels, puttees, etc.

Early in the year the production of cloths suitable for prisoners of war in the enemy lands and for discharged soldiers as well as standard cloths were taken in hand, and a remarkable quantity of materials was put on the market at convenient prices. Standard blankets were ordered later on in the year. To-day mills are gradually working up their raw materials that had been allotted to them to fill the orders on hand, and are gradually changing over to goods for the soldiers who are expected to return at an early date. Already an order for ten million yards has been allotted to different parts of the district. The transition period is a gradual one and is being accomplished without any displacement of labor.

During the year working hours in mills have been for various reason curtailed and very little night work has been done. Wages have been increased more than once until to-day workers are paid more than double the rates ruling at the time when war broke out, and are guaranteed at that standard for six months after peace has been signed.

In the year the production of goods for civilian purposes has been very limited. Early in the year a census was taken of the material in the country for this purpose and it was found that supplies were ample for some time ahead and it must be admitted that the people generally have not gone short of clothing. For the overseas trade little has been done but it is reported that there are good stocks on hand ready for the time when it is possible to ship. There can be no doubt that the control exercised by the authorities in the wool trade generally has been beneficial for all concerned, both in regard to raw materials and the finished goods. Now the time is approaching when it is thought that some relaxation might with advantage be allowed. At present there are few signs that this is in view although some modification has come about in wastes. The few lines of civilian cloths that have been put on the market have been limited both in variety and texture. Tweeds and a few serges of sombre shades for men's wear, and a fine grade of goods suitable for women's wear are the particular branches of the trade that have developed materially. Lines have been produced that were almost unknown two years ago. They have replaced the all-wool fine costume cloths and cashmeres that were imported before the war and this imitation, and by no means a poor one, has sold freely. The production for men's wear has conformed to the before mentioned quality of standard cloths and here a large variety of lines is to be seen, including oxfords, blues, blacks and in two or three qualities. For £3 a serviceable and good looking suit of clothes can be purchased. The old lines of low grade cloths seem to have disappeared. The fact that cotton warps have been so dear no doubt has affected these particular lines.

CONTROL OF RAW MATERIALS

In the raw material branch of the trade and particularly that of wool substitutes the most important factor of the year has been the measure of control effected by the authorities for six months. Prices of all kinds of rags had reached abnormal figures and those who catered for army supplies were never sure at what price they could base their costs, owing to the fact that week by week rapid changes in prices took place. If a mill took an order for blankets and was unable to cover its requirements, for say a week, by the next week the price would be up 10 to 20 per cent. In many cases this is what actually happened until the attention of those in authority was drawn to it and it was decided that the raw material part of the trade should put its house in order. The trade was called together, an advisory committee was formed and they were instructed to set up a schedule of prices ruling at a fixed date, which were to be the basis. They exist to-day although there are signs that before long they may be repealed. Further, certain qualities, those suitable for remanufacture into blankets, standard cloths and a few other lines were not to be used unless a permit had been obtained. This part of the control has just been withdrawn and to-day shoddy mills can use any class of rags and shoddy for any purpose they desire.

The effect of the control on the rag trade was that for a few weeks there was both chaos and stagnation; immediately most prices went up to the scheduled maximum and there was a big struggle between buyer and seller, and it took a few weeks for matters to settle down. The country dealer demanded from the local grader the maximum but the latter declined to pay it, for it meant his buying and selling at the same price. But gradually those engaged fell into line and a spirit of loyalty soon developed. Since this spirit of give and take has prevailed things have run along pretty well. It had the effect, however, of greatly reducing the margin of profit for local merchants but slowly the law of supply and demand set in, and by the end of September prices in most lines fell away. Some of them dropped cents below the maximum, and to-day goods are changing hands in some cases 3 to 4 cents below, while others that are scarce sell at the scheduled rates. The one to benefit was the grader, as he was fully protected in the price of the mixed material. It was the merchant who suffered. To-day the position of the trade is perplexing indeed. Since the armistice was signed there has been little or no buying. Consequently nearly every line in old stock is away down in price and especially so in knitted stock; that of the best quality has suffered most. The line that maintains its price is that of new clips. Owing to the shortage in supply it is eagerly picked up at the maximum price in almost every line.

The supply of domestic stock all through the year has been maintained remarkably well. It has been a surprise to all to find supplies coming round so regularly after such a long period of

C. E. DOAN & COMPANY

WOOL DEALERS AND COMMISSION MERCHANTS

PULLED and FLEECE WOOLS

112 Chestnut Street **NOILS** PHILADELPHIA, PA.

RIGHT NOW

WE BUY *and* SELL

Worsted *and* **Woolen Waste**

FOWLES and CO.

35 Letitia St. PHILADELPHIA, PA. 34 S. Front St.

WOOL

NOILS

WASTE

WM. D. OELBERMANN & CO.

Wool, Hair and Noils

124 So. Front Street

Philadelphia, Pa.

G. & C. KREGLINGER

Representing

G. & C. KREGLINGER
Antwerp, Paris, Punta Arenas
Gallegos, Santa Cruz, Descado

VAN PEBORGH & WILLEMEN
Buenos Aires, Montevideo
Bahia Blanca

Established 1797

WOOL

232 Summer Street, Boston

Philadelphia Office:
139 South Front Street

Representing

KREGLINGER & FERNAU
London and Bradford

KREGLINGER & FERNAU, Ltd.
Sydney, Melbourne, Brisbane
Adelaide, Christchurch

war, but no doubt the prices realized have been the great stimulus and the housewife has been able to pick up a nice bit of pin money by conserving and then disposing of all kinds of cast-off material that probably was formerly burnt. Auction sales have shown little if any dimunition in their offerings compared with pre-war times, and in that oversea supplies, except from France, for almost two years have been cut off, it has been more remarkable still.

As the civilian trade develops no doubt there will be a great change in the demand for rags and shoddies. Already there are signs of a revival, and as it is not likely that most wanted lines from abroad, such as fine grade softs in the shape of merinos, fine serges and best grade worsteds can be imported it is confidently expected that early in the new year prices will gradually stiffen.

PRICES HIGH

It can safely be said that during this past three months there has been a struggle as far as prices are concerned and this has been accentuated this past six weeks. It is extremely doubtful if prices of clothing will ever return to pre-war figures. First of all the whole cost of production due to higher wages will certainly prevent any material reduction taking place. Manufacturers' prices are to-day much higher than a year ago, and as retailers will have to pay much more for their supplies next Spring than they paid for goods a short time ago it is obvious what the result will be. Then again the overseas trade will come along. Recently large supplies have been sent out to the evacuated areas in France, Belgium and Italy. Their demands will increase and the normal trade will gradually develop and then things should happen.

During the year stocks of certain qualities of rags have been much depleted and there have been small accumulations of the best lines. Wool has no doubt its price fixed for some time to come owing to Government action, and the very best substitutes will have the call. This is what has obtained during the past few months. The best lines to sell have not accumulated. The clothing factories during the year have been engaged to fully 80 per cent. for the services, and stocks of ready made goods are abnormally low. Even since the armistice clothiers have had to pay advanced prices for their cloth, when they have been able to get their orders accepted, but cloth merchants and especially those in London and the large centers have done their best to get prices down. They ceased placing orders and even attempted to slip away from their obligations. It has been no use and this last two weeks they appear to have fallen into line somewhat and are easier to deal with. This has been reflected among the mills and the raw material market. Signs of waking up are shown and confidence is returning.

Forward Strides in Reworking of Wool

Rapid Advance by Rag and Reclaimed Wool Stock Industry

DURING ten months and a half of the year just closed, from January until the armistice of Nov. 11, the demand for substitute materials was the greatest ever known in the business. During the period of the war the industry engaged in reclaiming wool fibers for re-use rose to a distinct and separate place in the commercial field, for one reason because its products became more necessary in cloth manufacture in America than they ever had been, and for another because these products benefited by recognition brought about by the war. All the clear effects of military strife cannot be known at this time, but a merely superficial survey reveals that the rapid increase of the use of reclaimed wools carried them to a far advanced point, which the coming of peace should in due time make only the more secure. In the course of the year lines of demarcation were more closely drawn in waste material lines, and the necessities of war brought wool stock graders into a strong, distinct organization, in order to support the Government in its enormous clothing program for the Army and Navy. The moves taken in the first half of the year to bring about the requisite central control of rag stocks and woolen clips also brought the factors engaged therein to an advanced business level.

The outlook for 1919 is agreed by factors in the trade generally to be very encouraging. With the resumption of a peace basis, demands for the domestic and export trade cannot fail to be large, and when conditions are stabilized an increasing volume of business is reasonably well anticipated from January forward.

DEMANDS DEVELOPED EARLY

Perhaps the character of the year's business developed in its reality and fullness in the first half of the year. Certain it is that from the time Government control became effective in July, the lid was clamped tightly on initiative as well as speculation, and from then forward to the removal of Government restrictions early in December, when demand flattened temporarily to zero, and so continued to the year's end, routine only existed, stocks ran down, and there was little more to do than to keep one eye on the stock ledger and the other on the profit sheet.

In those first six months, demand, while great, defies a strict consumptive analysis, because speculative features obtained with abnormal force and effect. Serges and worsted clips featured strongly in demand and these as well as light clips developed a scarcity. Complaints increased as time went on, of a lowered quality in clips, yet prices rose steadily as virgin wool conservation increased, and reworked wool consumption also became greater.

In old woolen rags, in the early months and later, demand was strongest in fine and coarse light merinos, fine light worsteds, brown worsteds, blue and light serges, tan and fine light cloths and other grades used, directly or by decoloration and redyeing, in Government fabrics. Mixed softs broke over the November maximum agreement late in January, going from 14 to 16 and 18 cents and on up to 23 cents asked. Other primary materials and graded stock also went over maxima and runaway conditions obtained for several weeks. Through the efforts of certain manufacturers an embargo was reestablished, preventing exports of plain black cloth, plain brown cloth, and new and old felts (not woven). Dealers began reporting dark stocks as large as 65 per cent. of their sorting left on their hands, adding in price to the active grades the costs of storage and investment of their unmovable material. Transit congestion and coalless days also contributed delays and additional costs in the early part of the year, and by March demand was strong, shortage of material complained of, maximum prices observed in some places—in others not—and speculation plentiful. Buying for mill consumption halted perceptibly from this point onward. Wool fiber manufacturers were sold up three to six months ahead, on khaki, oxford and white, especially used in Government fabrics.

GOVERNMENT ASSISTANCE

The business direction of the substitute market, as with other industries, came into the hands of the Government for the period of the war. While the operations and direction may mean much in history, in other considerations of a review, and as to its reactions on trade in particular, this period probably amounts to less than a similar period of unrestricted constructive effort would. In other words, the period may mean more as history than as business.

THE BASE SORTING PLANT

In the initial period of Government assistance and direction, in the early months of the war, the establishment of a base sorting plant was the sole outstanding feature. When the year 1918 opened the sorting plant, operating at 5 Mercer street was a small affair. When the armistice in November brought hostilities to a close, the base sorting plant had been established in the Hallenbeck building, 505 Pearl street, with abundant machinery and more than 100,000 feet of floor space. It accumulated and disbursed large collections of woolen clippings, carefully sorted and baled. Distribution is still continued by bidding and currently it is disposing of 2,500.000 pound lots of OD in the following characteristic sorts: Overcoating clips (melton), worsted suiting, wool suiting (flannel), wool shirting (cotton carded), cotton warp worsted shirting, mixed wool clips (various colors and grades), mixed cotton warp clips, cotton warp jerkin lining, punching seams.

HIGH LIGHTS OF CONTROL

Direct control of the rag trade was operative from the first week in July until the corresponding week in December. During the period of administration fixed prices were maintained on the collector, the grader, cutter, shoddy-maker and to mills. The suspension of rag exports was extended in the middle of the year to include brown, blue and dark skirted cloth, including felts, in view of the shortage of ships threatening a famine in wool. Various other conservation steps marked Government control of the trade, which was enforced by the requiring of regular reports from dealers and manufacturers. Aside from these physical aspects affecting the industry from top to bottom, it was in general a prosperous and busy year throughout the trade. The admission of reworked wool to army suitings and overcoatings marked a distinct forward step in the recognition of reworked material, while manipulated cloths made with combinations of wool, reworked wool and cotton, held almost undisputed sway in the goods market. As a consequence, mills and factories producing reworked wool were steadily employed, and throughout Spring and Summer, until November, were sold up from three to six months ahead.

RECORD PRICES: GOVERNMENT RATES

With a rising demand throughout the spring months and a falling supply, price levels for clips and old woolen rags reached figures breaking all antecedent records. The first column in the table gives the high range of the market which served as Government maxima from July 8 to August 19, and the second column the average price on last transactions reported on Boston and New York markets at the adoption of the maximum schedule.

	High	Average
Mixed Softs	21 —22	21.67
Wool Bodies	8 —8½	8.375
Blue Serges	22½—23	21.33
Brown Serges	30 —31	30.33
Green Serges	30 —31	29.83
Red Serges	26 —27	25.80
Black Serges	19 —20	18.67
White Knits	53 —55	53.33
Red Knits	25 —26	25.67
White Softs	50 —51	48.50
Blue Knits, Mixed	24 —25	24.00
Light Hoods	36 —38	36.50
Silver Grey Knits	43 —45	42.67
Brown Knts	29 —30	29.67
Fancy Knits	19 —20	19.50
Black Dressed Knits	29 —30	28.67
Light Grey Underwear	15 —16	15.00
Fine Light Merinos	30 —31	30.00
Fine Dark Merinos	18 —20	20.00
Coarse Dark Merinos	15½—16	14.67
Coarse Light Merinos	23 —24	24.00
Thibets	24 —25	24.25
Soft Black Carpets	3⅜— 4	3.83
Wool Carpets	9 — 9½	9.00
Rough Cloth	8½— 9	9.00
Skirted Cloth, ripped from Rough Cloth	11 —11½	11.08
Skirted Cloth sorted from Mixed Rags	9 — 9½	9.25
Light Skirted Cloth	14 —14½	13.83
Black and Whites	14½—15	15.00
Fine Light Skirted Cloth	17 —18	18.00
Brown Skirted	8½— 9	9.00
Dark Skirted	7¼— 7½	7.00
Black Skirted	8 — 8¼	7.92
Tan Skirted	23 —24	22.00
Light Skirted Worsteds	23 —24	23.00
Blue Worsteds	18 —19	17.67
Black Worsteds	19 —20	18.67
Brown Worsteds	20 —21	19.00
Dark Worsteds	14½—15½	14.83
White Linsey Flannels	6 — 6½	6.25

NEW WOOLEN CLIPS.

	High	Average
Ordinary Clothing Clips	34 —36	33.50
Fine Merchant Tailor Clips	35 —38	34.50
Fine Light Worsteds	46 —48	44.25
Fine Dark Worsteds	39 —42	38.75
Brown Worsteds	46 —48	44.25
Black Worsteds	55 —60	55.25
Blue Worsteds	60 —62	56.25
Fine Light Cloth Clips	32 —33	32.00
Coarse Light Clips	22 —24	23.67
Blue Cloth	25 —26	25.50
Ordinary Unions	7½— 8½	7.17
Light Unions	10 —11	8.59

DANIEL S. PRATT DANIEL S. PRATT, JR.

Daniel S. Pratt & Co.

Manufacturers of

Woolen Yarns

185 Summer St., Boston

Telephone Beach 8

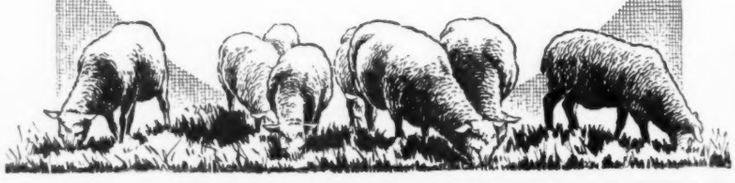
HOUGHTON WOOL COMPANY

GENERAL WOOL MERCHANTS

Selling Agents

THE CUDAHY PACKING CO'S
GENUINE BRUSHED WOOL

230 Summer St. Boston



Walker, Searle & Co.

Top Makers

Importers of English, French and Spanish Tops
Wool Futures

158 Summer St. *Boston, Mass.*

NEW YORK
FIFTH AVE. BLDG.
200 FIFTH AVE.

PHILADELPHIA
DREXEL BLDG.
5TH & CHESTNUT STS.

E. S. Parkhurst & Co., Inc.

WOOL and HAIR

Established since 1857

BOSTON
BROWN BLDG.
185 SUMMER ST.

MILLS
GLOVERSVILLE
N. Y.

Khaki Cuttings, Woolen	43	—45	41.33
Khaki Cuttings, Worsted	68	—70	60.50
Mixed French Flannels	25	—26	25.50
Soldier Blue Indigo	29	—30	28.67
Brown Cloakings	12	—13	12.17
Blue Cloakings	12	—13	12.17
White Serges	56	—58	55.33
Red Serges	40	—42	40.00
Light Serges	37	—39	36.50
Tan Serges	47	—48	46.00
Dark Serges	26	—28	26.25
Black Serges	42	—44	42.50
Blue Serges	50	—52	48.25
Mackinaws	15½	—16½	16.00

These parallels show the war range on prices and the first recessions after maximum prices were removed by the Government:

NEW WOOLEN CLIPS

Government Maximum Prices in effect from Aug. 19.		Nominal Prices Reopening Dec. 11
Black worsted	65	55 —60
Blue worsted	62	52 —54
Blue worsted edges	50	45 —46
Brown worsted	57	46 —48
Black and white worsted	56	50 —51
Light worsted	54	46 —48
Fine light worsted and clips	50	
Fine lights	45	
Fine dark worsted	48	—46
Fine dark worsted and clips	47	
Fine mixed clips	44	—41
Mixed dark clips	40	35 —37
Mixed clips	35	
Medium mixed clips	32	
Heavy weight clips	28	25 —26
Coarse dark clips	23	—21
Coarse light clips	25	—22
Ordinary light clips	20	15 —16
Black and white	30	—23
Dark gray Oxford	26	—23
Plain black clips	26	24 —25
Blue uniform clips (without edges)	38	
Fancy Mackinaw	20	15½—16½
Union	8	6½— 7
Light union	11	9 — 9½
Light blue serge	52	50 —52
Black serge	50	44 —46
Blue serge	50	45 —48
Brown serge	50	42 —44
Green serge	50	44 —46
Red serge	50	40 —42
Tan serge	60	52 —54
Black and blue serge edges	35	
Dark serge	35	—28
Light serge	45	37 —39
White serge	70	—65
Blue cheviot	28	—26
Red cheviot	28	—26
Brown cheviot	28	—26
Green cheviot	28	—26
Black cheviot	28	—26
Light blue cheviot	28	—26
Tan cheviot	35	—34
Light homespun	35	—34
Medium homespun	30	—29
Ordinary homespun	25	—23½
Light flannel	35	34 —35
Blue flannel	35	32 —33
Red flannel	35	32 —33
Green flannel	35	32 —33
French flannel	27	22 —23
Mixed flannel	25	23 —25
Black flannel	33	32 —33

OLD WOOLEN RAGS—GOVERNMENT MAXIMUM

Mixed softs	21½	15 —16
Blue serge	25	19 —20
Brown serge	32	29 —30
Green serge	32	28 —29
Red serge	28	25 —26
Black serge	22	18 —19
White softs	52	—53
White flannels and serges	60	
White knits	56	53 —55
Red knits	27½	24 —25
Blue knits mixed	26½	24 —25
Silver gray knits	45	35 —37
Brown knits	32	28 —31
Fancy knits	21	20 —20½
Black dressed knits	30	29 —30
Light hoods	33	36 —38
Light gray underwear	16	13 —14
Fine light merinos	32	28 —29
Fine dark merinos	25	19 —20
Coarse dark merinos with serges	16	13 —14
Coarse light merinos with serges	24	19 —20
Thibets	28½	22 —23
Rough cloth	8¾	5½— 6
Skirted cloth ripped from rough cloth	11½	6¾— 7½
Skirted cloth sorted from mixed rags	10	7 — 7½
Light skirted cloth	15½	13 —14
Black and whiteskirted cloth	17	15½—16½
Fine light skirted cloth	18½	16 —17
Brown skirted cloth	10	7½— 8
Dark skirted cloth	8½	7¼— 7½
Black skirted cloth	10	7½— 8
Blue skirted cloth	10	7½— 8
Tan skirted cloth	25	21 —23
Light skirted worsted	25	20 —21
Blue skirted worsted	21	17 —18
Black skirted worsted	22	19 —19½
Brown skirted worsted	22	18 —19
Dark skirted worsted	17	17 —18
Wool carpets	10½	—10½
Soft back carpets	4½	— 4½
Mixed linseys	4¼	3½— 4
White linsey flannels	7	— 6
Wool bodies	8¾	6½— 6¾
Skirted delaines	6½	5 — 6

NEW NAME FOR REWORKED FIBERS

No little progress was made during the year, therefore, in the general advancement of the reworked wool industry, and its product. It was feared in the market, in January, that if the maxima established by agreement in November, 1917, were not maintained, the next specifications for olive drab meltons would be confined to virgin wool alone. Instead, however, the percentages were increased. Factors in the trade, besides combining efforts to restrain speculative elements, determined on a campaign of wide extent to educate the public to the merits of reworked wool. In pursuance of this plan, adopted by the wool stock graders and wool fiber manufacturers, a comprehensive exhibit was made at the Textile Shows, in Grand Central Palace, lectures were given in Milwaukee, Detroit, Chicago and other large inland centers. The committees also made a request of advertisers and publishers to discontinue use of the word "shoddy." Widespread compliance was made with this request, and the results are referred to, in the trade more particularly than with manufacturers (who thoroughly understand the old term and retain its use in the mill in the avoidance of a worse confusion), with general satisfaction.

Rise and Fall of Government Wool Control

Dual Civilian and Military Power Which Transformed Wool Market Now Disintegrating

THE wool trade of the United States is, at the present time, merely a branch of the Quartermaster's Department. In dealing briefly and concisely with the mechanism of the wool market as transformed by the introduction of Government control it should be clearly understood that the control forces which have been far-reaching and radical, though probably short-lived, have all been exerted on that intermediary organization standing between the wool grower and the wool consumer, that is to say, the wool market. Three factors only are to be considered, the grower of wool, the man who acquires and distributes it, and the manufacturer who buys to produce fabrics. The grower and the manufacturer have been affected only indirectly by control, but the wool market has been completely transformed.

CONTROL A MILITARY NECESSITY

Government control, brought into existence by military necessity, virtually succeeded in the establishment for the entire country of a single monopolistic organization having the sole right to buy, acquire, import and distribute wool. All the activities, customs, practices, facilities, profits and experience of the trade, scattered in pre-war times throughout the country in half a thousand separate organizations became consolidated in one all-embracing body, the supreme head of which was the Quartermaster General of the United States.

Less than a year was necessary to complete this evolution of a number of free organizations into one dominant semi-military body and unless all signs fail, in less than half that time peace will disintegrate the Government organization leaving again a free field for the carrying on of the old-time and highly successful method of individual enterprise. A prominent Boston dealer was asked "Has anything of value been developed by the Government method of handling wool that is likely to be adopted by the trade when control ceases?" The answer given and generally concurred in by dealers is that absolutely nothing new had come to life that would be capable of application in the old-time free field of buying and selling.

OLD AND NEW METHOD OF BUYING

Under the old regime, to take a single case, which will illustrate the essential difference in the two systems, a wool dealer could receive a consignment, paid for outright, and then ship it all or in part, graded or ungraded, to any of his mill clients. The transaction was simple and quickly closed. Nothing like this has been possible under Government control. This simple operation would be lengthened out something like this: The dealer would receive the wool, making a payment in part only, to be completed later when a committee not associated with his house had agreed on its value. On receipt of the wool the administrator would be notified and he in turn would inform the valuation committee having charge of such wools, who would when they got round to it, in the multiplicity of their duties, pass their collective judgment as to shrinkage and character and report to the administrator. If he approved the wool it would be billed to the Quartermaster's Department, samples would be drawn and sent to the wool distributor for examination by prospective wool buyers. Wool selected and alloted would be billed to them by the wool distributor and in case of excess shrinkage there would be no recourse.

CO-OPERATION OF CIVIL AND MILITARY POWERS

The underlying reasons for establishment of control were two-fold; first, to secure suitable wools in large quantities expeditiously; secondly, to secure these wools after eliminating the law of supply and demand, which would have forced prices skyward. Control all along has been exerted as a resultant force of a powerful civilian organization on the one hand and military authorities on the other. The War Industries Board was appointed by the President and having gathered to itself many of the brightest men in the country, was endowed with far reaching authority. A smaller organization having charge of all import questions and known as the War Trade Board acting in conjunction with the Textile Alliance was, when important questions arose, called into joint consultation. This was noticeably the case in July last year when the War Industries Board, the War Trade Board and the War Department jointly formulated the edict, that no licenses for importation of wool from Argentina, Uruguay or South Africa, would be issued for the remainder of calendar year except to Quartermaster General. Civil and military authorities, as above outlined, have worked throughout the year in cordial cooperation, exercising coordinate functions, but on the first of the year the civil organizations ceased to exist and the wool trade is now solely in the hands of the Quartermaster's Department.

ORGANIZATION OF CONTROL SYSTEM

In placing the wool trade rightly in position as a division in the Quartermaster's Department, it may be said, that the supreme head of the purchase, supply and traffic division of the Quartermaster's Corps, is Colonel Goethals. Eliminating the traffic division we have General Wood as the head of the purchase and supply division, and lower down the scale General Rose, the head of the purchase division. This purchase division covers, as its name suggests, the acquirement of all kinds of supplies for Army needs. The special division in which the wool trade is in-

"BRETON"

OILS FOR WOOL

Adapted for All Kinds of Wool Batching

In Daily Use by Leading Mills for Over 30 Years

Made in grades to meet different requirements

Oils and Greases

FOR TEXTILE MACHINERY

Loom Oils — Spindle Oils — Engine Oils

Dynamo Oils — Cylinder Oils — Machine Oils

Sufficient oil of any kind sent subject to "test and approval"

BORNE, SCRYMSER CO.

80 South Street, NEW YORK

BOSTON — PHILADELPHIA

Works: Elizabethport, N. J.

terested is the Clothing and Equipage Division, itself subdivided into the following: Woolen and knit goods, with two branches woolen and knit goods respectively, and the wool tops and yarn subdivision, of which A. W. Elliott is head, having as branches the Wool Administration, headed by Charles J. Nichols and Wool Distribution, headed by Ernest W. Brigham.

In brief, the Administrator took the wool over on July 30. Price Cost Distributor issued it to manufacturers, having Government contracts, at another and higher figure, in general about 7 per cent. higher than cost.

Technical questions relating to the wool trade have throughout the control process been handled chiefly by the civilian organization, the all powerful War Industries Board. This organization had its woolen and wool sections, the chief of the latter section being Lewis Penwell with Ludwig Eisemann as assistant with office in Boston. "Government Regulations for Handling Wool Clip of 1918" were issued by the wool division of the War Industries Board and in this historic document prices of the 1918 clip of wool as established by valuation committee were approved by the Government as those established on July 30, 1917, at Atlantic seaboard markets. This document received considerable interpretation from time to time but was the authoritative guide throughout the entire period of Government control. Throughout the process the technical skill was with the civilian organization and the authority mainly in the military department. This division, however, was not absolute; authority over-lapped time and time again and sometimes conflicted.

The wool administration and distribution departments under this scheme have all the time been located in Boston and the wool, tops and yarn branch is now here also. The wool administration for convenience in working has had its various branches covering greasy, scoured and foreign wools. Valuation committees composed of prominent wool men and working in one or more units have been at the call of the administrator. And although from time to time there have been complaints by manufacturers regarding shrinkage, yet on the whole the work of these valuation committees has been of the highest value and eminently just and fair to everybody concerned.

DECLINE OF CONTROL

On the signing of the armistice it was very generally agreed that the control of the wool trade, brought about by military need, would not long survive under permanent peace conditions. The wool trade of the country had virtually been put out of business. The necessity had been accepted philosophically with the expectation that so stern a war measure would be temporary and not outlive very long the close of the war. This expectation is now seen to be well grounded. The unscrambling process has commenced. The first thing to be done is to dispose of the Government stocks of wool estimated at around 325,000,000 lbs., which amount is supposed to include the balance of the 1918 clip not yet all taken over. All Government buying has ceased in South America, and it is understood that the 100,000,000 pounds of Australian wool, the purchase of which was negotiated with the British Government, will not now be taken. Our Government wishes to get out of the wool business as expeditiously as possible. Colonel Goethals is armed with all necessary power to dispose of Government wool by any method he may choose. The auction method is being tried out, but is not proving the success anticipated, the fundamental reason being that manufacturers, unless in dire need of wool are not willing to pay prices so far above world values as our wools are to-day. The demand for finer wools has been reported at figures 107, below issue prices. Low grade wools have been unsalable.

Textile Cost Accounting

(*Continued from page* 140)

the day or week, while those termed productive are paid by the day or by piece work. The latter is found to be the prevailing method in most mills, except in the more modern plants where bonus or premium plans are in operation.

When workers are compensated by piece work, the payroll should be provided with several columns so that the various piece rates may be entered as column headings. With this arrangement, the quantity produced may be entered opposite the operator's name, and at the same time under the proper piece rate column. Following horizontally across the payroll the detail of pay and the total pay to each operator will be clearly shown, while adding vertically the total production at each piece rate will be found.

Each payroll sheet forms a proof in itself; for the sum of the vertical columns multiplied by the rate at the column heading will give the expenditures under each rate. The sum of the expenditures must equal the sum of the productive labor pay columns.

TREATMENT OF MANUFACTURING BURDEN

Burden may be divided into two classes:

a. Departmental controllable burden.

b. Uncontrollable or fixed burden.

To the former belong such items as non-productive labor, supplies, repairs; to the latter depreciation, insurance, taxes and general supervision.

This separation of controllable burden affords, by monthly comparison, an indication of the executive ability of the individual in charge of the department.

The amount of fixed burden for the mill is readily obtained and the departmental apportionment is based on more or less definite factors. The controllable burden items require more detailed accounting. It is necessary to know the repairs, supplies, and other factory items to make the proper charges.

Every manufacturer knows that the burden or overhead charges in a mill are greater in winter than in summer months. Yet nobody would think of accepting a contract for summer delivery at a lower price than for winter delivery, under equal market conditions. An expensive repair necessary in a department cannot justly be included within but one cost period.

The control of such fluctuating distributions is made possible by the establishment of reserve accounts similar in operation to those commonly employed for taxes.

Each month there is carried into the departmental burden a predetermined amount which in the year's aggregate will be the equivalent of the fluctuating expense items.

The difference between the actual expenditures and the predetermined amounts entered in the cost figures are accumulated month by month.

Where the expenses are greater than the reserve figure the difference is termed "burden unabsorbed." This indicates that the costs for the month in the aggregate are too low by the amount of the difference. Conversely, if the expenses are less than the credit to reserve the term "burden overapplied" is used.

The difference between the actual expenditures and the predetermined amounts entered in the cost figures are accumulated month by month. In the summer time an overapplied balance gradually builds up to provide for the winter months when unabsorbed differences are to be expected. The establishment of the predetermined amounts is purposely gauged to produce a small overapplied balance within the cycle of the year.

SYSTEMATIZING

The term "systematizing," from the cost accountants' standpoint, is the process of planning all clerical work so that the final results may be obtained with the least effort. Great progress has been made in the application of mechanical devices for assisting cost clerks. A distinct part of the planning of textile cost accounting is the proper selection of such devices and the instructions for their use.

The saving in clerical work through systematizing is often so great that without additional clerks the new cost accounting and control can be maintained.

To conduct a business with the keen competition that the next few years will bring, and without an accurate knowledge of costs, will indeed be hazardous. If a quotation is made below cost through ignorance or faulty figuring where mills that know their costs are competing, the mill, without knowledge, will be loaded with the order. Many serious losses have occurred through just such a procedure and have remained undiscovered until the semi-annual statement reveals the true condition. The greater the number of mills knowing their costs, the cleaner and more just will be the competition. Plant efficiency, management and business sagacity will then be the predominant features of a mill's success.

Army as Textile Purchaser

(*Continued from page* 136)

gency. The Council of National Defense with respect to this list of articles obtained quotations which it forwarded to the depot quartermaster, Philadelphia, Pa., and the depot quartermaster at Philadelphia placed the orders. This plan related primarily to such things as woolens, cottons, etc. This plan was soon superseded by a substantial consolidation of purchasing into the hands of the several divisions of the office of the Quartermaster General in Washington. The policy of centralized purchasing had advantages, but was open to the objection that it did not make it possible to use effectively all the resources of the country. In order to make a more effective use of such resources a plan was adopted under which the country was divided into zones, each zone tributary to a general supply depot, charged with the responsibility of discovering the production facilities of that zone. The depot was authorized, under instructions from Washington to make contracts, or the proper procurement division of the office of the Quartermaster General may make contracts on the basis of information received from the depots. It was hoped in this way to retain the advantages of centralized control over all purchasing, and to obtain as well the advantages of the decentralized investigation of and reporting upon the resources of all parts of the country. It has also been found desirable, because of the need for closer relations with certain producing centers, to organize branches of the office of the Quartermaster General elsewhere than in Washington. So, for example, the Clothing and Equipage Devision has offices in New York, the wool-purchasing quartermaster in Boston, etc.

OPENING HOUSE REPORT — Week Ending

BALES	FROM FORM	1 1/16"	1 1/8"	1 1/4		TOTAL
On Hand	Fig'd					
Rec'd						
Total	Fig'd					
Del'd	36-7					
On Hand	Fig'd					
In Transit						
Total	Fig'd					

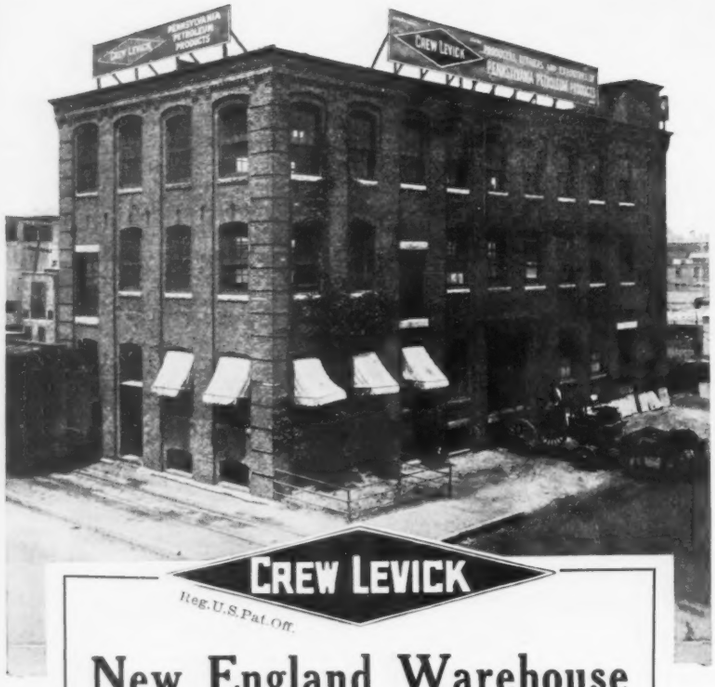
	FROM FORM	BALES DEL'D
1 inch	36-7	
1 1/16 inch	36-7	
1 1/4 inch	36-7	
Total	Fig'd	
MACHINE REPORT	AVG. RUN	AMT. STOPPED
4 Preparers		
2 Preparers		

TOTAL TARE	FROM FORM	LBS.
Hoops and Buckles @	37-F	
Bagging @	37-F	
Total @	Fig'd	

REASONS

WEIGHTS 8 BALE MIX. 1 1/16 | WEIGHTS 8 BALE MIX. 1 1/8 STAPLE | WEIGHTS 5 BALE MIX. 1 1/4

EXAMPLE SHOWING ARRANGEMENT OF A PRODUCTION RECORD



CREW LEVICK
Reg. U.S. Pat. Off.

New England Warehouse

is maintained at Cambridge, Mass., for the added convenience of New England users of

Lubricating, Fuel, Wool and Other

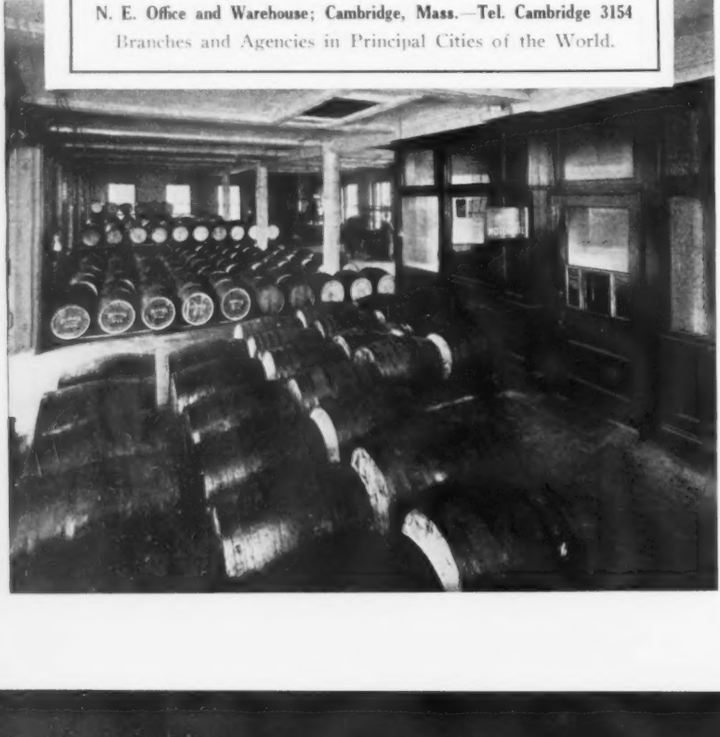
Oils

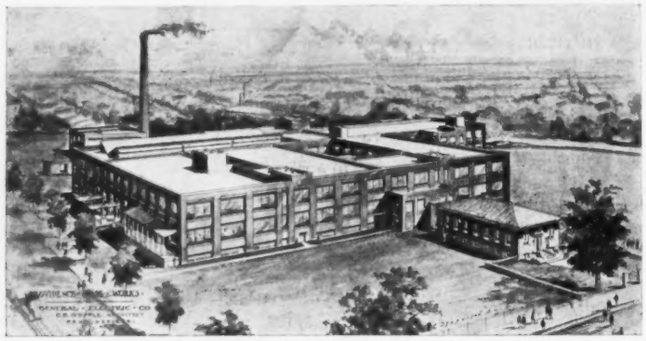
The completeness of the stock and the thoroughness of the co-operation are characteristic of Crew Levick service standards.

The use of the finest *Pure Pennsylvania Crude;* continuous refining experience since 1862; a research and advisory staff of expert chemists and engineers; and a wide-spread distributing organization—these are the factors which have established and maintained the superiority of Crew Levick Quality Oils.

Correspondence Invited

CREW LEVICK COMPANY
115 North Broad Street, Philadelphia, Pa.
(Subsidiary Cities Service Co.)
N. E. Office and Warehouse; Cambridge, Mass.—Tel. Cambridge 3154
Branches and Agencies in Principal Cities of the World.





Providence Base Works—General Electric Co., Providence, R. I.

Eugene B. Whipple

Mill Architect and Engineer

Design of Complete Industrial Plants
Investigations, Appraisals

319 NATIONAL EXCHANGE BANK BLDG.
PROVIDENCE
RHODE ISLAND

D. C. ANDREWS & CO., Inc.

ESTABLISHED 1884

Foreign Freight Contractors **Customs Brokers**
Ocean Freight Contractors and Brokers **Marine Insurance**

27 and 29 Water St., NEW YORK

PHILADELPHIA	BOSTON	CHICAGO
788 Drexel Bldg.	134 State St.	14 E. Jackson Blvd.
SAN FRANCISCO	SEATTLE	BUENOS AIRES
485 California St.	705 Arctic Bldg.	Via Monte 939

Merchandise of Every Description Forwarded to All Foreign Countries via Atlantic-Gulf and Pacific Ports

CONSOLIDATED CARS OF { Iron and Steel / Cotton Piece Goods / Machinery and General Merchandise

despatched regularly via TRANS-PACIFIC route from NEW YORK and CHICAGO to SAN FRANCISCO, SEATTLE, TACOMA and VANCOUVER for export to CHINA, JAPAN, PHILIPPINES, JAVA, STRAITS SETTLEMENTS, INDIA, AUSTRALIA and NEW ZEALAND

An organization complete in every detail, equipped to handle export and import shipments to and from all points in the world

Eight Weeks in England and France

(*Continued from page* 119)

men including Mr. Winston-Churchill, Frederick Smith, Attorney General, Lord Cecil, Sir Arthur Pearson, General Ian Hamilton, Raemaker the famous cartoonist, the Lord Mayor and Sheriff of London and scoress of other well known civilians, military and naval officers.

While the natural expressions of welcome and rejoicing at victory were always in evidence, there was no lack of discussion of the difficult problems of peace and many practical suggestions.

At these dinners the toast to the King and the President was always proposed first and drunk in silence; then the toast to "Our American Guests," which was proposed in a speech by the chairman and responded to by some one of our party.

NEAR BAUPAUME ON THE SOMME FRONT. THE WHOLE COUNTRY WAS DEVASTATED LIKE THIS BY THE GERMANS IN THEIR RETREAT

General Smuts the famous Boer General now in the War Council of the British Empire entertained us at dinner, where we met Admiral Jellicoe and many other distinguished public men.

The American Chamber of Commerce invited us to a big luncheon where we met the prominent American residents in London.

The proprietors of the Observer invited many leading publishers to meet us at luncheon and the Minister of Munitions and the President of the Board of Trade were also guests.

At a dinner given by Mr. W. E. Crawford we met Gen. Townshend of Kut-el-Mara fame, who had just returned from Turkey. I sat beside him and he told me the story of the campaign.

Lord Northcliffe gave us a delightful luncheon in *The Times* Building in old Printing House Square. He asked us in advance who we wanted to meet, and then gathered together about sixty of the big business men—men who had been doing great things in war work. For three hours we talked of the problems of war and the problems of peace.

The Duke of Sutherland invited us to luncheon one Sunday at his beautiful estate, twenty miles from London, historic Sutton Place. Another Sunday was spent at Sir Thomas Lipton's home, near London, where we discussed the proposed challenge for the America Cup which had just been forwarded.

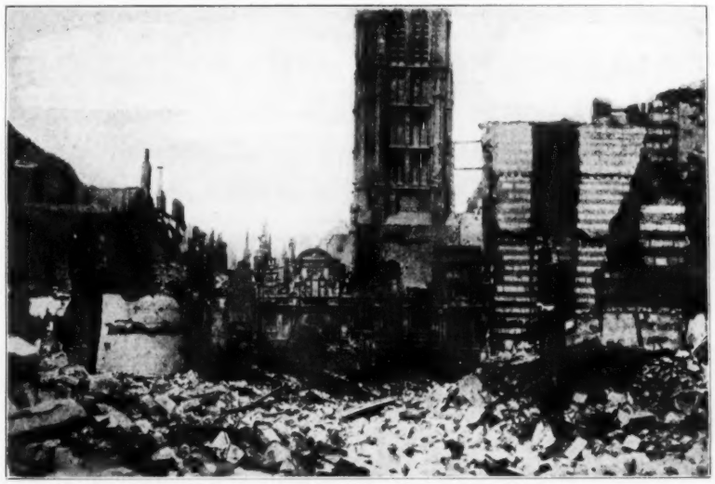
On this occasion we met Sir Andrew Weir, the Surveyor General, who has charge of the purchase of all supplies of materials.

Other smaller entertainments were given for smaller groups of our party or to individuals by those especially associated with the industries they represented, and many invitations had to be declined from lack of time.

I have mentioned this phase of our visit to show the hospitality extended so profusely to us, not of course as individuals, but because we represented the great business journals which, in turn, represent the great industries of America.

I wish it was possible to reprint some of the brilliant speeches on these occasions.

The English after-dinner speaker always has something to say that is worth while, and he usually says it well and seldom speaks too long. Mr. Frederick Smith, the Attorney General, is one of the most eloquent speakers I have ever heard.



CITY HALL AND SQUARE IN ARRAS. THE CITY WAS HELD BY BRITISH THROUGHOUT THE WAR. 60,000 TROOPS WERE SECRETLY ASSEMBLED IN THE CONNECTING CELLARS AND TUNNELS UNDER THE CITY, FROM WHICH THEY LAUNCHED A SUCCESSFUL SURPRISE ATTACK IN AUGUST

It had been arranged that we should be received by the King and Queen, but his visit to France after the armistice made this reception impossible. I saw the Royal family, however, at Buckingham Palace on Armistice Day, and again in their tour of London afterwards.

We also saw Lloyd George at the reception of Marshal Foch and Clemenceau in London, also the wonderful greeting given to Sir Douglas Haig, when he returned from the front for the holidays.

Those who have witnessed these welcomes will always remember that beneath his outer shell of reserve the Britisher has a capacity for enthusiasm which equals any other people.

VISITS TO WAR PLANTS

It must not be supposed that our time in London was wholly or principally spent in banqueting and speech-making—far from it. Visits were paid to munition plants, airplane factories, hospitals, Y. M. C. A. huts, docks, industrial exhibitions, meetings with business men in one's own industry, visits to American Headquarters, our Embassy, Consul General St. Dunstan's hospital and receiving calls from many people wanting special information or wishing to meet us.

VISIT TO GRAND FLEET

Ten days were spent in London and vicinity with every minute fully occupied and then we went to Scotland to visit the Grand Fleet and some of the great shipbuilding plants on the Clyde. We went first to Edinburgh, where we were entertained by the Lord Provost and Corporation of the City in the Municipal Chambers and Banqueting Hall. The unique Scotch customs and the most cordial spirit of hospitality made this occasion a delightful one.

It was our good fortune to visit the Grand Fleet at Rosyth, near Edinburgh, during the week of the surrender of the German fleet! We were entertained on the flagship and then taken aboard a swift Government despatch boat and for hours steamed along lanes of dreadnaughts, battleships, cruisers and other war vessels extending for miles. It is impossible to express adequately the impression one gets from an inspection of that wonderful fleet.

We went aboard a vessel of each type and over some of the ships from turret to keel. We saw the great guns worked as they would be in action, for our benefit only with dummy cartridges. We lunched in the ward room with the officers. We met the admirals and we met the seamen and came away with a profound conviction of the wonderful strength and efficiency of the British Navy, the great bulwark of the British Empire, which could never have been defeated by Germany.

It was a gratification to see our own splendid squadron of six superb battleships forming part of this great fleet and to hear the good words spoken of our ships and men by their English cousins.

The officers and men of the fleet fully expected and were prepared for some action or attack by the German fleet at the time of the surrender. They could not believe it was possible for seamen to turn over their ships without a fight. Every man was hoping for some kind of a scrap and the ships were tuned up to the last pitch.

Some days later Admiral Sims was speaking about the surrender and the feeling of the officers of the British and American navies about the disposition of the German ships. He said they hoped that the ships would never see service again; they might be stripped of everything of value and then the hulls taken out to sea and sunk. They should not be turned back to Germany and no British or American seaman would wish to serve on these vessels.

While in Edinburgh we were entertained at the Castle by the Governor, Sir Robert Montcreiffe, and by special telegraphic order from London, Holyrood Palace, which had been closed during the war, was opened for us. It was in Edinburgh that we saw the first big lot of British prisoners arriving from German prison camps. The whole city turned out to meet them and it was a scene of mixed joy and gladness. The men looked thin and haggard.

SCOTCH WAR PLANTS

At Glasgow we visited the great Beardmore plant on the Clyde. Before the war this was a shipbuilding plant, employed principally on naval construction; now it builds not only all kinds of vessels, cruisers, destroyers and submarines, but aircraft, big guns and mountings, munitions as well.

It employs 12,000 to 15,000 people and controls its own raw material.

No women were employed in heavy work in this plant, but hundreds were working in aircraft and munitions departments under the best of conditions.

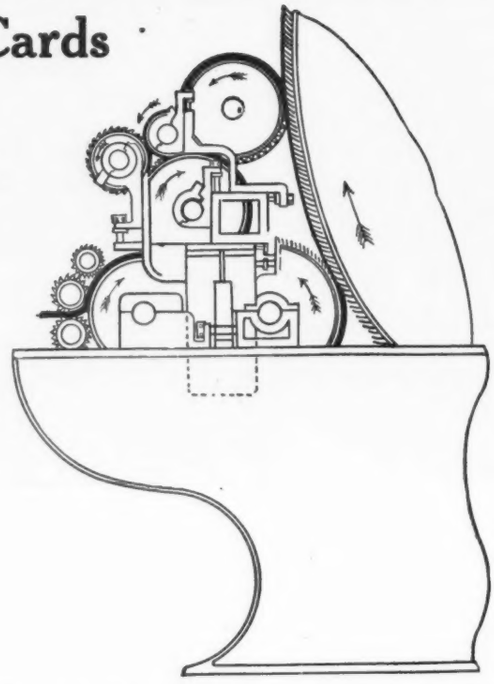
SUBURBS OF LENS. THE WHOLE CITY IS RUINED LIKE THIS. COAL MINES AND MACHINERY WRECKED

Copyright by Committee on Public Information

BATES METALLIC TOOTH BREAST

For First Breaker Cards

Requires No Extra Floor Space



The accompanying cut shows the BATES METALLIC TOOTH BREAST for First Breaker Cards.

This breast can be fitted to any breaker card, without disfiguring the card, as the rolls are on arches furnished with the breast.

It is the only breast on the market that takes the lumps that reach the main cylinder back through the breast and re-cards them, and that prevents foreign matter from reaching the main cylinder and injuring the card clothing. It is positively the only breast that requires no extra floor space.

The first cost of the Bates breast is lower than others, and on account of its extreme simplicity, the cost of upkeep is less than one-quarter that of other breasts.

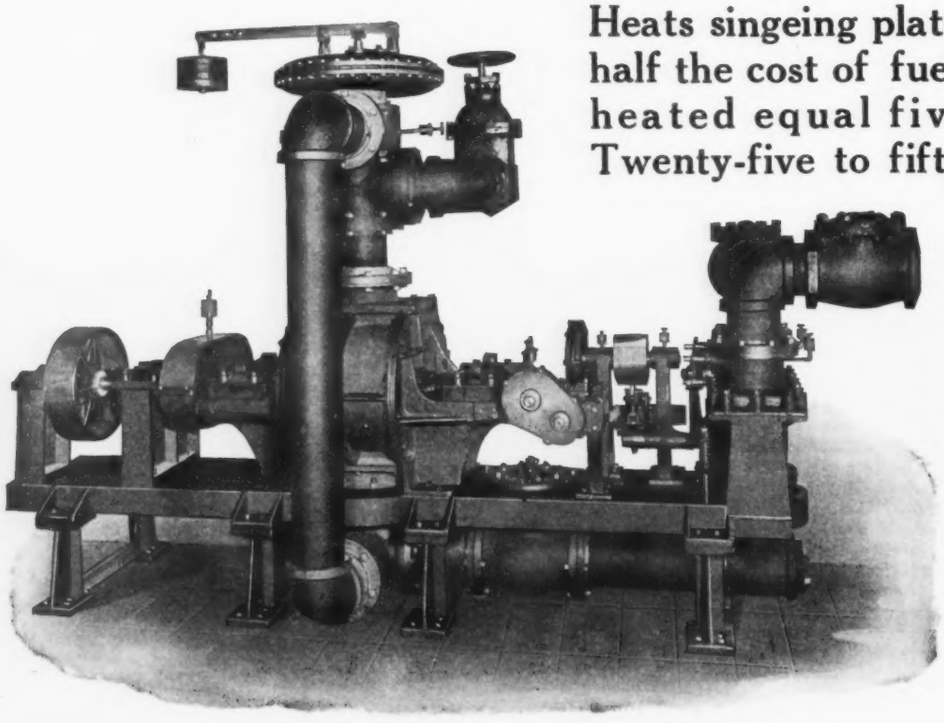
It is used and endorsed by many of the finest mills in the United States and Canada and has never failed to give the highest satisfaction where it has been installed.

For full details and price address:

BOSTON TEXTILE MACHINERY COMPANY, 212 State Street, Boston, Mass.

Telephone: Richmond 1982-J *Selling Agent for* E. V. BATES MACHINE COMPANY

The KEMP AUTOMATIC GAS SYSTEM



Heats singeing plates with city gas at one-half the cost of fuel oil. Three plates gas heated equal five plates oil heated. Twenty-five to fifty per cent. more yards per minute; life of the plates increased; open flame gassing; machines more efficient.

Our engineers will gladly report on your conditions and benefits to be obtained

BALTIMORE, MD.

We found various opinions expressed about women's work. Some employers were well satisfied, others will be glad to get the men back. My personal opinion is that men will take back their old jobs in machinery and engineering trades to a great extent, and that the women will remain in the lighter work and clerical work where they have replaced the men. The textile industries which have always employed many women will not be much affected, except possibly more women weavers will be employed than before the war.

Men weavers are more generally employed in England than in our mills.

LUMBERING IN ENGLAND

At Gretna Green, near the Scottish border, is an immense shell plant which has created a new town laid out on model lines and giving some idea of what may be expected from the new housing plans that the Government program contemplates.

The village reminds one of some of those built like magic around our big plants in the United States, although the houses are of concrete or plaster. One sees almost no wood construction in Great Britain, although great tracts of forest land have been cut down by the Canadian and American forestry corps. This lumber is used entirely for war purposes, for building bridges, trench supports, duck walks and many rough purposes for which it seems a great waste to use the splendid timber, yet it could serve no more useful purpose.

It certainly seemed odd when motoring from London to the Duke of Sutherland's place only twenty-five miles out, to pass through a stretch of woodland in the midst of which was a typical American lumber camp with a sawmill nearby, converting the timber of a wonderful old park into practical use. The cutting has been done under the direction of the best forestry engineers and far less damage has been done than might have been expected.

GLASGOW

In Glasgow we were splendidly entertained at dinner by the Lord Provost and Corporation. In these Scotch cities leading citizens are members of the city Government. There are no political parties and the city's business is conducted as a great business corporation. Glasgow is one of the most progressive cities in municipal control of public utilities, operating its own gas, lighting and water work, and street railways. It also owns many blocks of municipal dwellings for workingmen which are leased at very moderate rental, which tends to keep the rents of private owned tenements at a reasonable price. Glasgow's growth in the past ten years and particularly since the war has been very rapid. It has now a population considerably exceeding a million and is the second city in the British Isles.

LANCASHIRE AND YORKSHIRE

On our return from Scotland the party split up for a few days and I went to Manchester and Bradford calling upon many old friends and meeting a number of gentlemen connected with the Cotton and Wool Control Committees.

THE JOURNAL'S regular correspondents in these cities have given from week to week a very accurate picture of textile conditions in England which I shall not attempt to elaborate in this article, but may at another time endeavor to give some further impressions of my conferences with manufacturers and officials on subjects bearing on the textile industry.

Every one in Manchester was talking about the labor problem. The strike was ordered, but no one expected it would occur. A compromise along the lines of the actual settlement was predicted, and the manufacturers seemed quite resigned at the moment, but were looking to the future with anxiety, fearing that the high wages and high cost of machinery and supplies and restriction of production by the unions would make competition for the world markets very difficult for them. The labor problem is the threatening cloud that hangs over the reconstruction period in Great Britain. If the demobilized troops are not absorbed quickly into the ranks of the employed, and if labor generally is not kept busy at good wages, there is grave danger of socialistic disturbance.

The Government seems fully aware of this danger, and the demobilization plans have been carefully worked out to guard against it, while employers almost universally express the wish that there will never again be a return to the low level of wages that prevailed before the war, but that the working people should have wages sufficient to live in a better way than before the war.

Lancashire is anxious to get more American cotton as soon as possible, and also wants to know what we are going to do about supplying cotton to Germany and Austria.

THE MAIN STREET IN THE VILLAGE OF SAILLY ON THE BRITISH FRONT. THIS IS A SAMPLE OF THE COMPLETE DESTRUCTION OF HUNDREDS OF LITTLE VILLAGES IN BELGIUM AND NORTHERN FRANCE

TEXTILE MACHINERY

The textile machinery builders have dropped their war work and are getting back to regular lines rapidly. They are still controlled by the Government, and must give preference to French and Belgian orders up to one-half their capacity. These orders come through the British Government, which instructs the builder to whom the machinery is to be shipped. British machine builders expect not only to re-equip the ruined mills which formerly used English machinery, but also to replace a large share of the German machinery which was extensively used. They are going about it energetically and systematically, and with the co-operation of the Government. Unless prompt action is taken by American machine builders we are not likely to get much of the French and Belgian business except for specialties, as before the war. English concerns are already shipping to the partly stripped mills such brass and copper parts as are necessary to enable them to start within a few months.

The English spinners and manufacturers accept the delay in filling their own orders with good grace, even although their own plants need tuning up after four years of abnormal conditions.

The old adage "There is no sentiment in business" is not true in England today. I have very many evidences to the contrary, and believe some of the spirit of co-operation and subordination of personal interests that was developed during the war will prevail in the adjustment of the after-war problems. England and France expect it of us also.

THE BRADFORD DISTRICT

In Bradford the talk was all of wool control and the problem of getting back to normal conditions without too great a shock. There were as many opinions expressed as men you met.

Some wanted control prices continued, with gradual reduction every four or six months to insure stability of future business. Others wanted Government control released at once. Some thought the London auctions should be resumed at once, others wished them deferred till July.

Some thought a free market for wool would result in a big advance in British wool prices to meet the demand and higher prices in America and elsewhere; others thought prices in America would drop to the British level. I found the same difference of opinion among the officials having to do with wool. No definite plan had been worked out at the time when Messrs. Patterson and Bigelow returned to the United States about Dec. 1, nor when I left London on Dec. 20.

Yorkshire woolen manufacturers have made large profits during the war, and were still busy at the time of my visit. They were looking forward to more good business. Some of their so-called "Standard" cloths are very attractive in style and construction, and I am told the margin of profit is satisfactory.

The Bradford district is much interested in what the tariff policy of the United States is to be, and whether President Wilson's idea of economic freedom between nations means a low tariff.

EXPORT RESTRICTIONS ANNOYING

One matter was brought to my attention which should be remedied, if it has not already been. Many English manufacturers have introduced special American machines, like winding, warp tyeing and others. The parts for these machines are made in the United States and our Government has made it very difficult to ship them to England, even although the British Government at the earnest representations of the manufacturers needing these machines and parts has been willing to grant permits and priority. No such difficulties were encountered in the shipment of machine tools for munition plants, and yet the textile manufacturers in England needed these machines for war contracts which were just as important.

AIRPLANES FOR BERLIN

When our party reassembled in London we were much pleased to learn that our request to make the trip from England to France by airplane had been granted, and we were invited to the great Handley-Page Works near London to see the plant and the great bombing planes that were all ready for the air attack on Berlin. Had the armistice been delayed three days longer, Berlin would have been bombed by three or more of these giant machines.

They have four engines—a wing spread of 127 feet and a fuselage capable of holding forty persons or carrying 13,000 pounds of bombs. We went into the machines. It was in one of

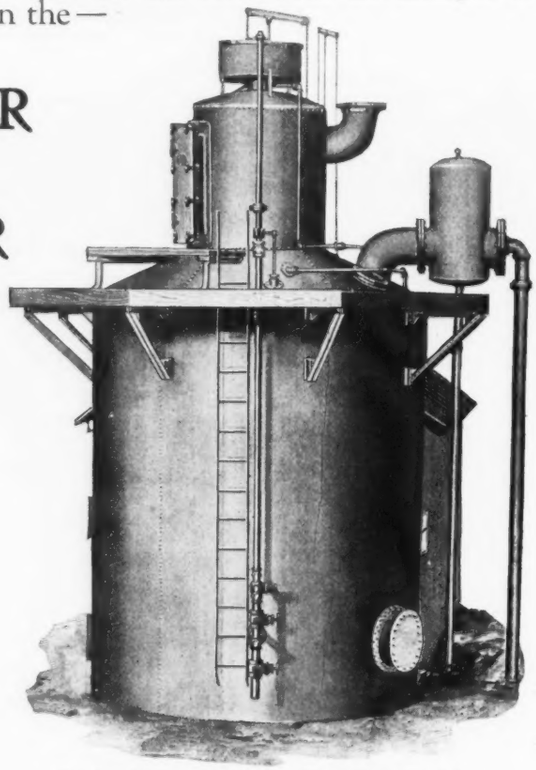
Copyright by Committee on Public Information

IN THE WRECKED CITY OF CAMBRAI. REFUGEES RETURNED TO CAMBRAI AFTER THE BATTLE LINE HAD MOVED EAST BEYOND THE FOREST OF MORMAL. MANY FOUND THEIR HOMES REDUCED TO RUINS

We manufacture all kinds of Water Softeners and we recommend the Hot Process Machine for treating boiler feed-water. *Wm. Graver Tank Works*

THOUSANDS of power plant superintendents are facing a new problem. Boiler feed-water treatment has been decided upon. The question is now, "What is the most effective machine to buy?" A little study — an investigation of the results attained by different types of plants will demonstrate the enormous advantages of treating after heating, as it is accomplished in the —

BARTLETT-GRAVER
Hot Process
WATER SOFTENER



Bartlett-Graver Hot Process Machine at Sinclair Refining Co., Cushing, Okla.

Here are its advantages!

1. **Reduces incrusting solids to 1½ grains or less.**
2. **Reduces alkalinity to harmless minimum.**
3. **Insures immediate reaction, thus avoiding possibility of secondary reactions and consequent troubles caused by sludge in pipe lines, boiler feed pumps and heaters.**
4. **Small settling tank required, enables entire plant to be located in the boiler room.**
5. **First cost of medium and large size plants is less than that of cold process machines.**
6. **Reheats water after treatment to the maximum temperature. (Don't forget that each eleven degrees saves 1% of fuel.)**

Don't Confuse this Water Softener with So-Called "Heater Purifiers"

Heating water to 200 degrees does remove a portion of the calcium and magnesium carbonates known as "temporary hardness." It does not affect the more harmful sulphates and other dangerous impurities which form hard scale. The Bartlett-Graver Hot Process Machine is a complete Softening Plant utilizing heat to prepare the water for immediate precipitation of all impurities by properly measured chemical reagents.

Apply the Cost of Your Feed-Water Heater on a Treating Plant

In equipping a new plant with the Graver Hot Process Machine you save the cost of the separate heater, which is a considerable percentage of the cost of the Softener. Plants already equipped with heaters find no difficulty in selling the equipment at a good price, thereby reducing the cost of the Softener by a good margin.

Send sample of your water supply and let us tell you exactly what we can accomplish for you

WM. GRAVER TANK WORKS

4814 Todd Avenue, East Chicago, Indiana

Steel Tanks and Steel Plate Work
Water Softeners and Filters

these machines that our entire party was to be taken from London to Boulogne. Unfortunately the day fixed for our departure was most unfavorable, with dense fog and rain, and as our schedule did not permit delay we went by rail and channel steamer.

Copyright by Committee on Public Information

HOUSE USED BY CROWN PRINCE AS OBSERVATORY DURING THE FAMOUS BATTLE OF VERDUN IN CENTER OF PICTURE

The difficulties for a civilian to get into France are very great. It took an entire morning in London at the British and French foreign and passport offices to get the necessary permits and visé, although we had priority and every assistance from our conducting officer. At Folkestone there were more examinations and formalities and again upon landing in Boulogne.

No cameras are allowed to be taken into France, which was a disappointment. We were also required to sign a long document not to do and say anything that would aid the enemy nor to disclose any military secrets we might learn. Our readers will therefore forgive me if I fail to tell the inside true history of the war.

No civilians are allowed on the channel steamers crossing from Folkestone to Boulogne unless on Government or special business, so we were almost the only people on the crowded steamer who were not in khaki. Civilians generally have to cross from Southampton to Havre, a much longer passage.

We had been advised before leaving the United States to provide ourselves with rough warm clothes and heavy boots for the trenches—consequently most of us were in trench coats, high boots or puttees, and found the roughest and heaviest clothing none too mud proof.

We were met at Boulogne by motor cars from British Headquarters and in two hours reached Chateau Radinghem, the guest house for visitors en route to the British front. This is a beautiful old castle dating back to the 14th century. It has been fitted up attractively but simply for guests and is in charge of three British officers. Motor cars are provided for the use of guests visiting the front.

The chateau is surrounded by a little lake or pond, which is the source of the River Lys. It is entered over a drawbridge in true mediaeval fashion.

AN ACTIVE PROGRAM

While at British headquarters we covered about 150 miles per day, visiting different sections, making big loops and returning to headquarters at night.

The Chateau was about 30 or 40 miles behind the battle area and this distance was covered at high speed. As you approach the front evidences of bombarding by airplane are first seen. Villages or towns where the railroad station and principal buildings are damaged or destroyed and the glass in the windows is usually all gone. Troops are billeted in almost all the villages, the roads are full of lorries and transport wagons and long trains of heavy artillery drawn by motors are moving to the rear, gangs of German prisoners are working on the roads, occasional groups of refugees are making their way back to their ruined home. Then the lines of Allied reserve trenches are reached. After the German push in March, 1918, the Allies constructed a series of trenches in the back areas most of which were never occupied.

FIRST IMPRESSIONS

When within two or three miles of the battle lines, the full realization of the appalling destruction of modern warfare becomes apparent.

The impressions of that first day at the front can never be forgotten nor can one adequately describe the scene. Pictures of course give a good idea, but there is something about the reality that neither written words nor camera can convey. It is the difference between reading the account of a play and seeing it acted. I had heard others express this thought and could not understand its full significance until I had seen for myself.

We were among the first civilians to visit the battlefields of the Western front. We were told that less than fifty American civilians had been over the British front and we were the first who had the opportunity of visiting the battlefields so soon after the fighting, when conditions were practically unchanged. The fields were still strewn with the débris of warfare, wrecked tanks, cannons, the remains of an airplane, unexploded shells, discarded rifles, acres of barbed wire, thousands of rifle cartridges, clips, hand grenades, bombs, etc. In some places the Salvage corps had cleaned up the ground of material worth saving and great dumps were piled along the roadside. The souvenir hunter might satisfy his most covetous ambitions, but the problem of transportation made it impossible to retain any but the least bulky articles. One of our party staggered back to the automobile after a stop along the Menin road near Ypres with a German helmet, a big brass six-inch shell, a German rifle, a few bayonets and a miscellaneous collection of junk. Most of these were left behind at the Chateau as the thought of toting them by hand through France for three weeks chilled the ardor of the souvenir hunter. We did, however, find many things of great interest and small size.

STUDYING THE BATTLEFIELDS

Each member of the party was furnished with a map of the battle area and each evening the officers would give a little talk about the trip to be made next day, illustrating by reference to the great war map on the wall.

Two other officers who had been through all the fighting for four years always accompanied our party and knowing in advance the history of the campaigns in the areas we were visiting, it added greatly to the interest and understanding of the situation.

I shall not attempt to describe the different places we visited on the British front—all of them names famous in the history of the great war. With the exception of Vimy Ridge and a few hills in that neighborhood, Messines Ridge and Mt. Kimmel, the country is one great flat plain, sometimes a little rolling, traversed by a few little streams and churned into awful mud: one labyrinth of trenches and shell holes filled with stinking, stagnant water. Wherever you dig down a few feet you strike water. From November to March the rain and fog are almost incessant, the trenches are ditches with mud and water usually above the duck walks.

The dugouts were mere holes covered with sandbags. The Germans had all the higher ground for two years and commanded the British trenches. How it was possible for human beings to survive and hold on as they did is truly a marvel.

Among the places we visited on the British front were Bethune, Cambria, Givenchy, La Bassée, Fournes, Loos, Lille, Tourcoing, Menin, Hooge, Ypres, Poperinge, Hazebrooke, Arras, Vitry, Lens, Levin, Souchez (nothing left only a signboard "Here was Souchez"), Vimy Ridge, Villers Aubois, Doullens, Albert, La Boiselle, Poziere, Bapaume Hindenburg line and Canal du Nord, Cambrai, Raillencourt, Abbeville, Amiens and Douai, besides scores of smaller places. Many places like Lens and Souchez were absolutely wiped out. Lille, Tourcoing and Roubaix were not much damaged externally.

I did not have opportunity to visit the interior of the mills but I learned from interviews with manufacturers of their general condition. The linen and flax machinery has been removed or practically destroyed; very little has been left intact. Cotton machinery has been damaged less, although all brass and copper parts have been removed and no care exercised in doing it. All belting and electrical apparatus has been taken away and most of the power plants wrecked or despoiled. A few mills would be in condition to start in a few months as soon as cotton is received. One mill section of Lille was badly wrecked by an explosion of a German ammunition dump which completely destroyed one big mill and damaged others. Most of the mills are in filthy condition from occupation by German troops as barracks or warehouses. I was told that 300,000 spindles of cotton spinning and 15,000 looms were wholly destroyed in Northern France and practically all doubling and thread machinery. The wool and worsted industry has been badly wrecked. While the buildings in Roubaix and Tourcoing are in fairly good condition the machinery has been stripped of parts, a good deal smashed and some taken away. Like Lille all belting is gone and all card clothing ruined.

Outside Tourcoing-Roubaix the destruction was very great. Fourmies was devastated and the mills in the Marne, Ardennes and other districts suffered greatly. I was given an estimate of 1,000,000 wool and worsted spinning spindles destroyed, about one-third of all in France, and 30,000 looms. The figures were being compiled by the Ministry for Devastated Districts as well as by the "Union Textile" and had not been completed when I was there. Certainly Germany should be made to pay complete indemnity for this wanton destruction.

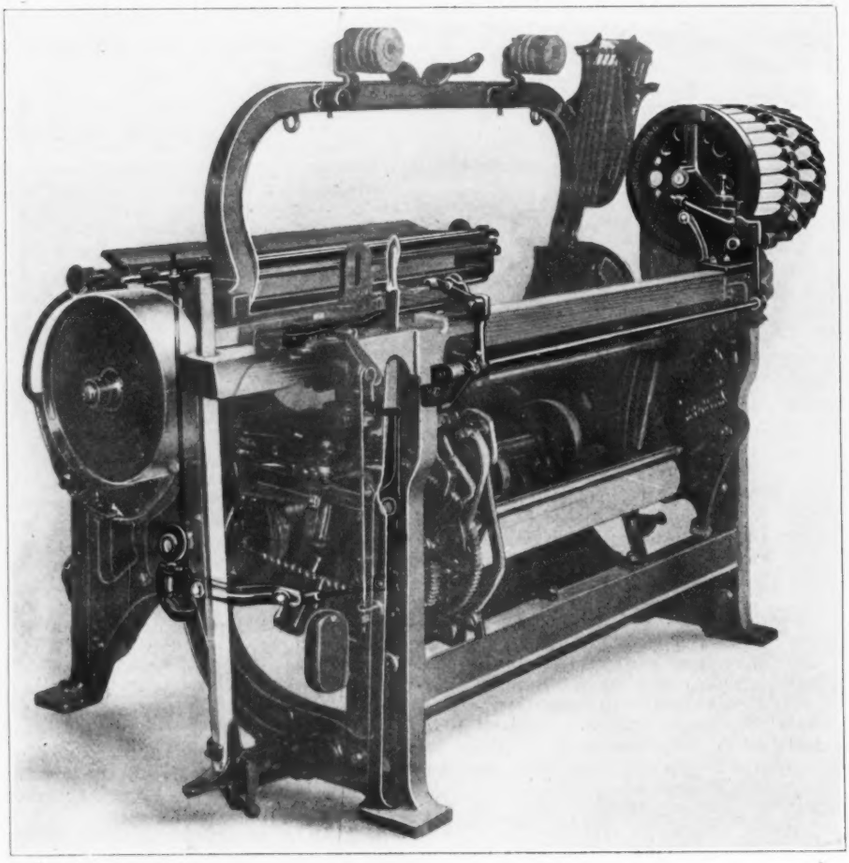
How these devastated and ruined towns and cities are to be restored is hard to conceive. The land to an extent of 5,000 square miles seems beyond reclaiming for cultivation.

There are no houses for the population to live in, but yet the love of these people for their old homes and land is so strong that manufacturers told me it would be useless to rebuild their mills elsewhere, if they wished to get their employes back.

Copyright by Committee on Public Information

A VIEW OF VERDUN FROM A BRIDGE ACROSS THE MEUSE. IN THE FOREGROUND A GROUP OF VISITING AMERICAN OFFICERS FROM THE NEARBY SECTOR OF THE ARGONNE

PLAIN LOOMS MADE AUTOMATIC



The Nor-Dray Attachments for making plain Looms Automatic are the greatest improvements made in recent years in weaving machinery.

Can be applied to any make of plain loom, old or new, giving quantity, quality and low cost of weaving equal to any automatic loom, at a substantial saving of investment by the mill.

Not an experiment, but a tested and proven success.

These Attachments include

Filling Changers, Nor-Dray Feelers, Warp Stop Motions, Drop Wires, Temples, Thread Breaking Temples, and Temple Rolls

Over 15,000 New and Old Looms equipped.

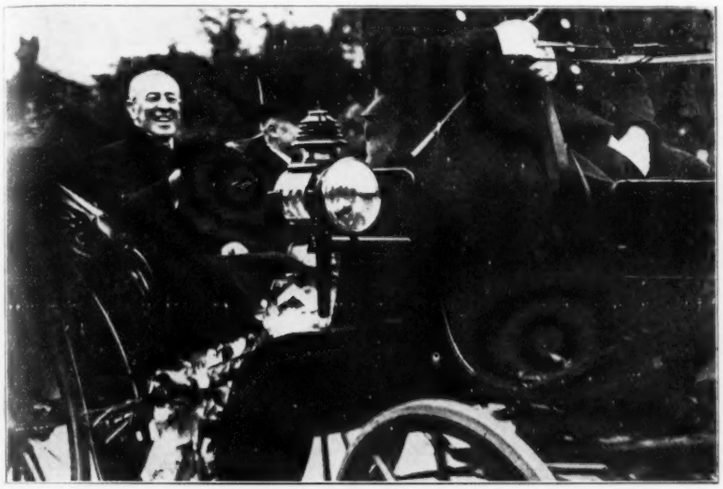
Our long experience in Automatic Loom work guarantees satisfaction.

May we tell you more about our proposition?

HOPEDALE MANUFACTURING COMPANY

MILFORD, MASSACHUSETTS

Of all the places visited Douai aroused our greatest indignation, for here we saw most revolting evidence of wanton and cold blooded pillage and calculated destruction of civilian prop-



PRESIDENT WILSON ARRIVING IN PARIS

erty. Externally Douai is practically intact. The Germans held it until October, 1918, and no fighting occurred in the city. The population was sent away a few days before the Germans left. Then every house and shop was wrecked inside. In house after house we found the most complete destruction from cellar to garret; furniture smashed, carpets ripped up and torn, pictures cut from their frames, mirrors smashed, every bed ripped open and feathers scattered everywhere, every piece of bric-à-brac broken, books ripped up, family photographs torn to bits.

All this not in a few houses but throughout a whole city. The calculated cruelty which could conceive and carry out such deeds of barbarism is beyond comprehension. A few refugees were returning to their ruined homes. We found in one of the fine houses of the city, its owner, a doctor, who had remained during the German occupation. He represented the International Red Cross and his house was occupied by German Red Cross officers whom he entertained to the best of his ability. They enjoyed his wines, admired his pictures and treated him as a friendly and respected host. A week before the evacuation he was sent away and on his return found his home the most hopeless wreck imaginable, all carefully carried out under the supervision of his Red Cross friends!

The destruction of Ypres, Arras, Lens, may have been due to military necessity, but Douai nothing can excuse. Would that the members of the Peace Conference might visit these places.

AT THE HINDENBURG LINE

We spent several hours on the Hindenburg line, which the Germans held for three years. The great trench is very wide and deep. It runs along a ridge of high ground, protected in front by outposts and advance trenches connected by tunnels. Vast dugouts open from the trench, thirty or forty steps deep, connected by galleries, lighted by electricity and absolutely shell proof. Machine gun emplacements and acres of barbed wire gave what seemed impregnable protection to the dense formations of troops which these dugouts could hold. And yet the British took it by the aid of the tanks!

We saw the tracks of these monsters through the barbed wire and directly across the great main trench! It would be unbelievable if one had not seen it. About half a mile back is the Canal du Nord, a great dry cutting much too wide for tanks to cross but not too deep nor too wide for the British and our own American boys to carry by assault—how—we could not understand—but they did it! No wonder the German morale declined.

On our way back to the chateau we crossed the area devastated by the Huns in the retreat from the Somme in 1917. It is one vast desert, not a house nor a tree standing. The most sombre descriptions we have read are not exaggerated. It was a sad, melancholy and depressing scene as we motored across this waste land in the twilight.

WRECKAGE OF CATHEDRAL

From the British front we went to Paris which was our headquarters for the French front. We went by early morning trains to Noyon and spent the day in that celebrated sector. Another day was spent in Rheims and vicinity. The famous cathedral is a tragic ruin, and yet not beyond restoration it seemed. It is still wonderfully beautiful and from a distance looks quite intact. But as you draw near, the malicious damage is realized. The roof is full of holes, all the windows are smashed, shell holes through the sides and shrapnel on the exterior all testify to the accuracy of the Hun's gunfire. Fortunately none of the eight great supporting pillars for the arched roof was injured and it may thus be possible to restore it.

The fighting around Rheims was terrific but the Germans never got in. At Berry-au-bac nearby where the German line held for four years, the system of underground dugouts connected by tunnels was extraordinary. We saw them just as they had been left in their hasty retreat. Taking hold of hands and led by a French officer who had been in the fighting when the position was captured, we groped our way by the light of an electric hand torch and matches through many of these underground chambers. Some of them well furnished with beds and chairs, rugs and pictures. We found in the King of Saxony's headquarters a handsome tiled fireplace and mantel, writing desk and all the furnishing of a comfortable living room, thirty feet under ground!

The amount of labor expended by the Germans in digging was prodigious. These wonderful underground comfortable quarters in the end proved fatal to them, as they turned out to be traps as well as shelters.

IN THE CHAMPAGNE CAVES

When in Rheims we visited the celebrated champagne caves of Pommerey extending in tunnels and galleries for twelve miles under the city. The Pommerey caves were connected with those of other concerns, so that they formed a complete system of communication under the city, accommodating many thousands of troops who could be moved from place to place in perfect safety from bombardment. These wine caves are old chalk tunnels; there are many great vaulted chambers and high galleries.

We were told that there were 8,000,000 bottles of champagne in the Pommerey caves alone. I can well believe it. There is no danger of France going dry, but they are quite concerned about the United States. The German troops never got a drop of champagne from Rheims, but the French soldiers quartered in the caves drank up a few hundred thousand bottles.

We visited Chateau-Thierry from the French front. There beside the railroad only a little distance, perhaps two thousand yards, was the low range of hills taken by the Germans in their advancing rush. The French line was broken; there were no troops back in reserve. There was an open road to Paris. We saw where trainloads of American boys pulled in at the foot of those hills, jumped from the cars, formed ranks and charged up the hill. Line after line was mowed down but the Marines and the 26th Division kept coming on till the hill was taken, the Germans driven back and the drive for Paris ended.

There are few evidences of battle here; it was all over so quickly. No elaborate trenches, no dugouts, not much evidence of heavy shelling, but terrific open warfare of a kind the Huns were not used to. The Americans were constantly surprising them because we didn't fight according to the established methods.

AT AMERICAN HEADQUARTERS

From the French front we went to American headquarters at Chaumont, and then on to Neufchateau, where guests are quartered in a comfortable house in charge of several American officers. From there we visited Toul, Beaumont, Seichprey, Mont Sec, Apresmont, St. Mihiel, Verdun, Douamont, Vaux, Commercy, Metz and many smaller places—many of them scenes of terrific French and American fighting.

The country in this sector is entirely different from the north. It is a beautiful, hilly and wooded land, making strong defensive positions. One can easily understand why for nearly four years the battle line hardly changed south of Verdun.

We passed through the American lines and followed the course of the St. Mihiel salient and saw where the Americans had gone through. We saw the wonderfully strong positions which had to be abandoned by the Germans who were outflanked. We climbed part way up Mont Sec which commands the country for miles. The French lost 60,000 in trying to take it by assault. It seemed impregnable. We cut it off when we drove through the base of the salient.

St. Mihiel itself is little damaged. The Germans have a big cemetery there with fine monuments.

VERDUN BATTLEFIELD

The battlefield of Verdun carries its own story of the tremendous struggle which makes it the most famous of the great war. We visited it on a beautiful December day—the best weather of our whole trip. The atmosphere was clear and we could see from Fort Vaux and other hills the whole great panorama, Douamont, Souville, Fleury, Dead Man's Hill and all the rest. Every tree of the dense wooded hills has been shot away, every foot of ground churned up with shell holes, the hillsides covered like hideous lace work with trench lines and parapets which show white in the chalky soil. The hills on which the battle was fought are several miles from the city and almost entirely surround it, forming a wonderfully strong position for defense. The Germans surrounded Verdun on two-thirds of the circle.

The town itself is less damaged than I had thought. It has little strategic value, and as it could only be reached by German heavy guns, they evidently preferred to reserve these for the fortifications. The Citadel in the outskirts

Copyright by Committee on Public Information

THE RUINS OF SEICHPREY ON THE AMERICAN FRONT. THE SCENE OF THE FIRST AMERICAN FIGHTING

of the town is largely built under a hillside with galleries and chambers accommodating 12,000 troops. We were shown through it and saw General Petain's headquarters.

SIGHTS IN METZ

Metz was occupied by the French when our party visited it a few days after the evacuation. The statues of German kings and heroes were lying overthrown in the streets, German signs were being replaced by French, the flags and decorations for the triumphal entry of the Allied armies were still up. The population of Metz is largely German, but they seemed well enough contented and we got few surly looks.

Metz is quite a modern city. It has been bombed about the railroad station, but otherwise is uninjured.

We visited several hospitals in France and England and were greatly impressed with the splendid work and heroism of doctors and nurses as we heard the stories of their valor. The hospital trains are finely equipped. The front-line hospitals have gone forward with the troops, but the evacuation hospitals and base hospitals in their former positions have still many wounded.

EVIDENCES OF U. S. ARMY

One feature that immediately impresses one on entering a French town occupied by American troops is the cleanliness of the place. The streets are swept, the manure piles which elsewhere adorn the courtyard of every farm house have been removed; the streets are policed by American M. P.'s, there are American officials at the railroad stations and it seems like a little bit of U. S. A.

We were everywhere told by officers and men alike of the splendid work of the supply service.

The troops are well fed and have no complaints. The Commissary prices are very reasonable.

The Y. M. C. A. huts are everywhere. They are so much accepted as a part of the army service that they are taken as a matter of course. Behind the front lines these huts are the centers of social life for the enlisted men when off duty. They have nowhere else to go. Their quarters are usually in barns or outbuildings. The "Y" is their home. There are frequent entertainments, lectures, concerts and picture shows.

In America I have heard some criticism and complaints of the Y. M. C. A.'s prices, but I heard little in France. Back of the lines the Y. M. C. A. canteen charge commissary prices, in the front line trenches their supplies are given free. This is also true I believe of the K. of C. and the Salvation Army but the latter works only in the front trenches while the Y. M. C. A. works at the front as well as the rear, consequently both gives and sells.

I found that the efficiency and satisfaction of the service depended very greatly upon the personality of the secretaries.

Personality and character count for everything on the battle line. The weak and inefficient man is soon sized up whether officer, doughboy or secretary.

DIFFICULTIES OF TRAVEL

Railroad travel in France is even more difficult than in England. Permission must be obtained to visit any towns in the military area. Very few trains are run. Crowds assemble on the platforms, mostly officers and troops, and when the long train pulls in, there is a mad rush and in a twinkling, all seats are filled and the aisles jammed. It makes little difference whether you hold first or second class tickets, you congratulate yourself upon getting a place anywhere. Everybody talks and jokes and makes the best of it. Food for luncheon is uncertain, as there are no hotels open in the war zone.

Food is very expensive in France—more so than in England, but meat can be had without ration ticket—but bread is rationed. Americans complain of high prices charged them by the French and the latter say the Americans are responsible for the high prices which they also have to pay as well.

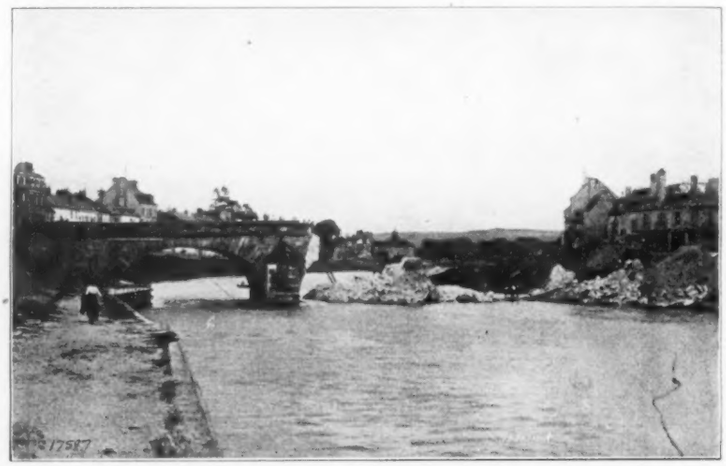
CONDITIONS IN PARIS

Paris is overcrowded, and since the armistice has resumed much of its peace time gaiety. Taxis are very difficult to get and the subways (which by the way are very fine) are crowded. The city shows few signs of the air bombing.

We were in Paris a number of days between trips and were handsomely entertained by various groups of business men, and met many officials. The trade associations in France are numerous and strong. They are called "Unions" (not labor unions), or "Syndicales." Each city or manufacturing town has its syndicale for each prominent industry, and then the local syndicales are banded together to form a National "Union" of employers. These Unions are officially recognized by the Government and their officials can confer with the departments in matters affecting the industry.

Copyright by Committee on Public Information

CHATEAU-THIERRY



Copyright by Committee on Public Information

THE MARNE AT CHATEAU-THIERRY

CONFERENCE OF TEXTILE MANUFACTURERS

It was my privilege to have a conference with the officers of the Union Textile, who called a special meeting for that purpose, which was attended by fifteen of the principal textile manufacturers of France, several of them had come specially to Paris to attend the conference, which lasted for three hours. These gentlemen represented all branches of the textile industry, cotton, wool, worsted, flax, jute and silk. They are greatly interested to know what the United States can do, and will do to help them get started again in the way of machinery, equipment and raw materials.

While in Paris we visited several big munition plants where thousands of women are employed. One of them has a great restaurant where 4,000 may eat at once. A good lunch is served at a reasonable price. It is an entirely new plant built since the war and largely equipped with American machine tools.

We were invited by the Government to visit the Hotel des Invalides and see the war trophies not yet open to the public, also to visit Versailles, the scene of the Peace Conference, which we did.

THE PRESIDENT'S RECEPTION

President Wilson's wonderful reception in Paris occurred while we were there.

The papers have described it. It was inspiring for an American to witness. The custom of lining the route of procession with solid ranks of troops and spreading the street with clean yellow gravel gives a finish and impressiveness to the picture which parades in America do not have. The enthusiasm was immense and sincere.

Neither in France nor England could people understand the opposition in America to the President's visit. They thought it the natural and proper thing to do. The heads of different European nations are constantly paying visits of ceremony to friendly countries and they think it tends to promote better feeling, not only among the leaders, but among the people.

EN ROUTE FOR U. S. A.

After nearly three weeks in France we returned to England for a few days and fulfilled several engagements which had been arranged. We were given a farewell dinner by the British Ministry before leaving London.

We sailed from London on the *Carmania* Dec. 22, having on board 3,000 Canadian troops going home.

No convoy or escort on this voyage, but boat drills and life belts were ordered, and the ship was fitted with mine sweepers. In nine days we reached Halifax, and it was an interesting sight to see the boys getting home. A day in Halifax enabled us to see the devastated area caused by the explosion. It is being rapidly built up. We also visited the great dock and government railways terminal system under construction which will cost $35,000,000, when completed. Two more days brought us to New York on New Year's morning.

This is a very rough outline of a remarkable trip. The opportunities afforded can never be duplicated. We saw the scene of the terrible war drama on the western front just as it was staged for action.

We saw and met many of the great men who took part in it. We saw many of the great events connected with the armistice. We talked with great leaders of the problems of reconstruction. We lived among the troops on sea and land for weeks. We traveled for weeks through England, Scotland and France and received the greatest hospitality from all classes of people.

We have been profoundly impressed by what we have seen and heard. No words can convey the awful horror of modern warfare nor describe the wonderful deeds done on the front and behind the lines.

We have been deeply impressed with the achievements of the British people on land and sea, not realized in the United States.

We are conscious of the enormous problems and difficulties of peace and reconstruction and confident that their solution requires the closest co-operation of the English-speaking peoples of the world and that upon them depends the peace of the world for the future.

Opinions of Textile Leaders on Current Problems

PEACE PROBLEMS UP

Handicaps to Normal Resumption of Business Conditions

Philip S. Tuley, Pres. and Treas., Louisville (Ky.) Cotton Mills.

The transition from a war to a peace basis will of necessity, in our judgment, be difficult and somewhat slow, owing to the fact that the market must absorb vast quantities of materials prepared, and not yet out of the hands of producers, or purchased and incapable of use, against government contracts now cancelled. Hardships will of necessity be experienced by many manufacturers, some of whom are, or will be, in distress and will be forced to throw upon the market their commodities at whatever price may be obtainable. Normal business conditions cannot be experienced until after these commodities shall have been absorbed. Meanwhile, buyers are of necessity properly pursuing a conservative policy, being unable to determine to how low a level prices will gravitate. It seems to be the general feeling that, except in instances of extravagance and of extortionate advances beyond a reasonable level, wages will continue upon the advanced basis for some time to come. It seems to us that it is eminently desirable that no radical reduction in wages should be undertaken in any part of the country. The return to domestic and agricultural pursuits by women drafted into industry must result to a large extent, and it would seem not unreasonable to hope and believe, indeed, that labor released from plants operated at high pressure in the manufacture of munitions, now discontinued, will gradually be absorbed without occasioning a marked degree of idleness. Statistics seem to indicate that the supply of labor is rapidly overtaking the demand. It may yet be that the supply will largely predominate.

It seems reasonable to assume that exports and domestic demand for commodities of American manufacture will develop to such an extent as to keep our normal facilities well occupied. We cannot feel that this will be brought about unless purchases for railroad's needs, maintenance and expansion are undertaken in a large way at an early day. It would seem to us to be the duty of the Federal Government, now responsible for financing the railroads, as well as their operation, to set on foot such a consistent development. The railroads prior to the war for years held aloof from all projects of this character and, indeed, failed to maintain their properties as they should be maintained, because of their inability to finance expenditures in the face of inadequate revenue. The Federal Government has taken care of this end of the matter to some extent, though revenues are still far short of the expenditures. The Federal Government can stand these losses and provide the necessary financial means, and it would seem to us that the sooner such plans are set on foot by the Government the better it will be for the country at large.

We incline to the belief that we are grievously unprepared for taking care of export business as it should be conducted. It is gratifying to observe that the Department of Commerce is taking these problems under consideration. They have to do not alone with selling policies, but also with transportation and financing and until these shall have been knit together we fear that this country is in poor condition to secure its proper share of trade.

It seems to us eminently desirable that the Federal tax laws should be so drawn as not to discourage or stifle plans or ambitions for development and expansion of industry. We realize fully the necessity for revenue, but unless it is wisely levied the object of taxation will have been in no small degree defeated at the outset.

Until we know more of the possibilities of developments in Europe on the part of industry and its recovery and rehabilitation from war conditions, it cannot be fully determined to what extent tariff protection will be necessary. In a general way, our feeling is that a reasonable tariff will be essential, essentially for the protection of dyestuffs and chemicals, which is an industry not yet fully established upon a competitive basis.

We cannot but be proud of our nation, in that it has so readily and cheerfully accepted government control and regulation in all conceivable walks of life. This step was a war measure and we believe the policy must change in this respect. It is not unnatural that those to whom such enormous responsibilities have been committed should feel reluctant to yield them up to private ownership. We hope that the new Congress will rise to the responsibility and the need of the situation. They are grave indeed. We trust it will not have only the wisdom and vision, but the courage to meet these problems wisely and sanely.

PROBLEM OF WAGES

Disparity Between Conditions Here and in England

John A. Perkins, Agent, Harmony Mills, Cohoes, N. Y.

I feel that in order to stabilize the textile industry and keep it on an even keel the first thing to be done is to have a protective tariff representing the difference in cost of production between goods made in this country and in foreign countries. Pre-war wages for a weaver in Bradford, England, were about $5.00 per week. Weavers' wages in American woolen mills at that time was about $15.00 per week.

I note by the trade journals that wages in textiles in England have increased 60 per cent. over pre-war standards, while in America wages have increased approximately 100 per cent. There was a difference in the weavers' wage between England and America before the war of $10.00 per week. The English weavers' increase of 60 per cent. brings their wages up to $8.00 per week. The American weavers' increase of 100 per cent brings their wages up to $30.00 a week, or a difference in the two countries of $22.00.

A representative of English manufacturers, who was in Boston a few months ago, made the statement that wages in the woolen mills of Lawrence were more than three times greater than they were in England, and that he could meet our tariff and undersell us 40 per cent. in our markets. I don't think there is the same difference between cotton goods in this and foreign countries as there is in woolen, from the fact that we have more automatic looms running in this country and are able to offset in some degree the difference in wages.

Everybody is looking for cheaper goods. If they cannot get cheap goods that are manufactured in this country, they look for them to come from abroad.

The next thing that should be taken care of is the pernicious Socialist propaganda being sent out from Washington by different departments there. The help in the industries are being filled up with an idea that they should own the mills. We have a sample in Russia of what happens when the help run mills. If it is a good thing for mills to be run by committees from the help, why isn't this system adopted in our armies? There is the same need of discipline in industry as there is in the army. I don't mean to say that the punishment for slight infractions of any rules should be the same, but there must be responsible heads. If everybody should go to work when they felt like it and quit when they felt like it, and work no harder when they were at work than they wanted to, what would the industries come to?

INDUSTRIAL CO-OPERATION

Upon This the Future Success of Business Largely Depends

Andrew Adie, President United States Worsted Co., Boston

We live in a new era, and in the language of the Good Book "Behold all old things have passed away; Behold all things have become new." The readjustment period so long expected has arrived, and every man has his "thinking cap" on. Labor and capital must come together as never before in the history of the world. The future success of an enterprise will largely depend upon a close and interested co-operation between the employer and the employe. Henceforth we must not only work for each other, but with each other. The cardinal principles of the Golden Rule will rebuild the world if applied with a profound interest in the well-being of mankind.

America stands to-day as a great example to the world. Nations everywhere are turning their eyes toward this great republic that held in her hands the destiny of nations. Shall we be true to our heritage, equal to our opportunities, and faithful to the principles of right and justice, for which we fought, bled and died to help establish these ideals for our Allies and ourselves? If we are, then the Golden Rule must be our guide as individuals and as a nation.

There is no excuse for Bolshevism in America. This is a land of equal opportunity, and it must be our deepest concern to counteract by every good means at our disposal the sinister influences that are at work to undermine the very foundation of our republic.

America, as never before, is calling upon every man to play a noble, unselfish part in maintaining its traditions of liberty and freedom within the law. We must assist and protect our industries as a nation by the framing of wise legislation to encourage the development of our natural resources, thus helping our people to receive good wages as a just remuneration for their efforts toward the prosperity of our country.

Shall we work fifty-four hours, forty-eight hours, or forty hours, appears to be an interesting question at the present time. If the interests of the employer and employe are interlocked, and they are, the number of hours of labor per week decided upon to work is a vital question. We shall have to consider whether by the old ideas or the new we can be more efficient, and whether we can be reasonably sure that we can do business on the competitive basis with a fair return for our labor and a fair return on the capital invested, considering the risks involved.

But there are more things involved than this. Shall we be more contented in our minds, happier and more responsible citizens? No thoughtful man or woman can escape the responsibility of answering these vital questions, because a change so radical in its nature will have a distinct bearing on the future life and prosperity of the nation, and will directly affect every home and every family.

America for Americans, must be our slogan. America first, last, and all the time.

An opportunity to increase our foreign commerce is at our door. Banking facilities in foreign countries are organizing, and valuable information can be obtained from these institutions on this important subject. But foreign trade at best will be of little consequence as compared with our own domestic market, which the world will endeavor to cultivate to the detriment of our own prosperity and balance of trade.

Trade conditions in the immediate future are attended with uncertainty. Now is the time to lay a good foundation for a return to normal business. As heretofore, the law of supply and demand will regulate values. To be an optimist on the future must win.

As a great nation, in the eyes of the world, let us pray for knowledge and understanding, to be guided by superior wisdom that pitfalls and rough places may be avoided, and that we fail not to live up to "the high calling wherewith we have been called."

STOP CRYING "WOLF"!

Be Optimistic and Show More Mutual Confidence

John W. Snowden, Vice-President The Stead & Miller Co.

It is very hard to forecast just what the future has in store for the textile trade. There are so many things confronting us at the present time, and each man thinks his troubles are the greatest. For the past two years we have had abnormal conditions, and now has come a reaction that we do not like or did not anticipate. With these reactionary conditions we must not let this feeling settle down so that from abnormal high prices on commodities we seek the other extreme and try to see how low we can put prices down. Should these conditions prevail we cannot expect anything but panicky times in the textile trade.

While every man is facing these conditions at the present time, it is always the cry of "Wolf! Wolf!" that causes disastrous times.

It is up to everybody in the textile trade to keep up a very optimistic feel-

OPINIONS OF TEXTILE LEADERS ON CURRENT PROBLEMS—Continued

ing and not slash prices because the trade happens to be a bit dull, as this always has a tendency to demoralize business in general, eventually does no good to any one, creates in the mind of buyers a feeling that it is safer not to buy than to buy, and it is through instances like this that we have periods of depression.

There is plenty of work for all. There was a great scarcity of help three months ago, and why this great change in so short a time with only a small percentage of our boys returned from Europe and apparently no work for them to do? I think the whole outlook can be summed up in the fact that we lack confidence in one another and are afraid that we are not going to get our full share of the returns or what we received while the war was raging.

I think that there has been a little selfishness growing in most of us during these abnormal times that we do not like to admit and that naturally crops out whenever we discuss the labor field, the tariff, the new revenue bill or taxes in general.

NEW ERA DAWNS

Based on Efficient Service to Customers and Justice to Labor

Sidney Blumenthal, President and Treasurer Sidney Blumenthal & Co., Inc., Shelton, Conn.

There will come with the dawn of peace and the new era an order of events requiring the recognition of a new sort of relationship: international, national, local and individual. Let it be our first resolve that whatever betides, we weigh well the burden which these impose as each new problem arises. It will become apparent that the humane view is also the economic view. It will become equally apparent that the happiness of humanity cannot reach its aim unless it recognizes the economic laws. The best interests of the largest number can only be served by the development and the full use of every faculty of each individual for the purpose for which he is working. Let us be sure that we have before us at all times the proper aim. Each one must employ his time and his mind rightly. Each one must form his judgment, not superficially, but in full accord with the dictates of sound reason and fairness.

The full value of co-operative effort has dawned upon the world with the assurance of a serene future. There will be a keener competition in the arts of peace than ever before. It will be a competition in the nature of friendly rivalry, but none the less intense and eager because it is friendly, none the less coupled with rewards of success. It will be therefore necessary for the United States, and the many organizations composing it, not to relax. Exchange of products with foreign nations will build up commerce. The higher wages obtaining in this country will make our ability to compete hopelessly difficult unless a volume and kind of production is achieved commensurate with the higher earnings of the producer. Never let us lose this from sight. International commerce, ordinarily a matter of slow growth, has received and will receive a temporary stimulus of extraordinary force. We must try to retain the confidence and the good will of customers at home and abroad, so that these business relations, and the prosperity which is based upon them, may endure.

If we want to be of the best SERVICE, we must strive to do better than ever before in the production of merchandise, in the attainment of quality, and in the effort to retain the advanced position of our factory organization from every point of view. There is abroad in the land, in all countries as in this, a desire to reach quickly and by artificial means the goal of comfort and large income. Let us remember that these cannot be had except by giving for them the equivalent. Every step that makes less intense the effort at production will add to the cost of the product. The cost of living is a complex result depending upon the proper appreciation of what is necessary and desirable for all with the least amount of aggregate national expenditure. We cannot have something for nothing. There is no royal road unless we make it by taking constant account of the duties imposed upon us by our manifest and carefully formed desires.

At the recent Convention in Atlantic City—at which committees representing 351 different industries in the country were present, and the largest aggregation of representative business men that ever assembled together in this country gave consideration to the problems before us—the outstanding feature was this sentiment adopted by common accord: That if the forces of the United States arrayed in battle for the destruction of the enemy were so successful because of close co-operation, it should be the logical and hopeful endeavor to organize the same forces for constructive work in time of peace now before us.

That manufacturers and their employes may travel a common path and in the right direction, a machinery should be created by which views can be exchanged and a reciprocal regard had for points of agreement as well as of difference. In most instances, the points of agreement are very much more important and outweigh by far the points of difference. Unfortunately too much emphasis is laid upon the latter. Whatever question may then arise, there would follow a sense of confidence in each other's desire to make for the joint best interests. Let us be deliberate and thorough in whatever we undertake. Let us be far-seeing. Let us be sure that the principles of JUSTICE, CO-OPERATION, and ECONOMY are at the bottom of every move, and let us find the ENERGY to carry forward our task. If we apply these thoughts to our venture with the proper COMMON SENSE and PERSEVERANCE, we shall render truly—what is required from every one in every walk of life to himself and his family and the community in which he lives—the only genuine SERVICE. That will spell a HAPPY NEW YEAR.

OPTIMISTIC WOOL OUTLOOK

Based on Precedent, World Conditions and Consumers' Needs

Charles F. Avery, Former President, Boston Wool Trade Association

With an acquaintance in the wool business, dating back to 1861, perhaps my experience may help one to form an opinion, which may help in the solution of the problem before us.

The close of the war in 1865 found us with an excess supply of wool and the Government with a supply of army goods, as at present. Gold was at a premium of 250, and values here were on an inflated basis. There was no possibility of exporting either wool or woolen manufactures while business was adjusting itself to new conditions.

Manufacturers of woolens were comparatively idle for several months when the civilian demand became strong and wool began to sell at a decline of about 40 per cent. from the high prices prevailing during the war. Business soon became active and, in 1868, several large mills were built and business continued good.

In 1871, owing to the reclothing of the armies of France and Germany following their war, prices of wool steadily advanced and values of wool soared all over the world; declining steadily in 1872-1873, until progress was checked by the Chicago and Boston fires, where many millions of pounds of wool were lost.

To-day, after the World's War, we find the following conditions: The United States Government owning practically all the wool in the United States, outside of the 1919 growing clip; Great Britain controlling practically all the English and Colonial wools, outside of South Africa; South America, with a new clip coming on and about 20 per cent. of last year's wool unsold, and Europe, bare of wool and almost of clothes.

Until the 5,000,000 tons of Australian wheat are exported, as well as the immense stock in South America, there will be little tonnage available for wool exports to this country, unless prices advance here.

The quantity of each grade of wool owned by the United States when the auctions began was as follows:

Fine combing,81.250,000 pounds; French combing, 32,500,000 pounds; fine clothing, 48,000,000 pounds; ½ blood combing, 19,500,000 pounds; ½ blood French combing, 13,000,000 pounds; ⅜ combing, 22,750,000 pounds; ⅜ carding, 13,000,000 pounds; ¼ combing, 13,000,000 pounds; ¼ carding, 19,500,000 pounds; low ¼ combing, 16, 250,000 pounds; low ¼ clothing, 16.250,000 pounds; class 5 combing, 6,500,000 pounds; class 5 carding, 3,250,000 pounds; carpet, 22,750,000 pounds.

Within the next six months it is reasonable to expect that at least two million soldiers and sailors will be reclothed in civilian attire. The women, as soon as the new styles are issued, will buy woolen and worsted goods. Many men, who from patriotic motives have refrained from purchasing during the war, will replenish their wardrobes, and with the adjustment, by passage of a bill by Congress, of the claims for cancellation of Government contracts, manufacturing generally will be resumed and the purchasing power of the masses restored.

Sees Ultimately Large Business

Manton B. Metcalf, president of Metcalf Brothers, said: "A clearing of the way for bringing in wool and getting it down to a stable price basis is of course the first essential in reconstruction for this industry. Little progress can be made until there is complete settlement of this matter.

"As to marketing, there are no great changes to be anticipated. The great danger is that the wool question will hang fire too long, and then, in case a suitable price is reached, the mills will not be able to manufacture all the goods needed. As a result it would serve to put the retailer into too independent a position and make clothing too high, higher than the consumer has good reason to expect for the fall season. It is just possible that continued delay would put off actual reductions to the consumer another year. This state of continued uncertainty is most unfortunate for speedy recovery. We are optimistic for ultimate large business, yet we will have to be a little patient while the adjustment program proceeds."

Must Meet World Wool Values

A. M. Patterson, of Patterson & Greenough, and president of the Textile Alliance, Inc., who recently returned from England, expresses the view of a large and influential element in the woolen industry in his belief that the high prices of raw materials must be overcome in order to facilitate the adjustment of the woolen industry to a normal peace basis.

Mr. Patterson was of the opinion that the only way to insure the return to a sound operating basis after a period of inflation was a thorough process of liquidation. Due to the lack of transportation facilities, enormous stocks of wool have been accumulated. In addition to the tremendous amount of wool controlled by Great Britain at home and in her colonies, there is a large quantity of British Imperial wool which England does not and probably will not control. As a consequence, as long as Great Britain fixes a price on the wool that it owns for civilian use, whether for consumption at home or in other countries, including the United States, that will beyond doubt be the prevailing price.

American manufacturers in the meantime, he stated, are faced by these prices which are lower than they can purchase wool for at home. Unless the barriers on importation of wool from any source are removed with reasonable promptness, a market gradually declining to British levels is in prospect, which will place American mills at a disadvantage compared to those abroad. The prospect of three or four seasons of a declining market is anything but a pleasant one. In view of these circumstances, Mr. Patterson was of the belief that the major portion of manufacturers would prefer to operate with the confidence that orders would not be subject to cancellation due to the gradual decline of the cost of raw materials.

Improvement Slow But Sure

Richard Strong, of Strong, Hewat & Co., said: "Until there are more Government wool sales indecision may continue. The wool problem is probably the chief stumbling block of the reconstruction period, and its settlement is dragging lamentably, for the way is not open now to obtain foreign wools, with all that means to manufacturing and selling. Foreign competition is not a serious factor; labor is improving constantly; demand for goods is large and becomes more healthful daily. From the character and extent of the needs for merchandise, I see absolutely no reason why business should not be first class."

Government Important Factor in Knit Goods Trade

Large Proportion of Underwear Production Taken for Fighting Forces

IN the accepted sense of the word there was no underwear market during the past year. War was the dominating element, and it was more the province of the seller to find merchandise for the market than to find a market for merchandise. Buyers were in and out all year long, taking such stocks as they could secure, and at no time being able to fully cover their needs. The industry was fully mobilized for war, and continued so until near to the close of the year. In the few remaining weeks between the completion in great part of Government contracts and the close of the year, conditions were too unsettled for buyers to operate. The year closed with civilians owning but an extremely small amount of merchandise, and sellers looking to the turn of the new year for an active demand.

DIFFICULTIES BESET PRODUCTION

All year long production was beset with a combination of difficulties out of the direct control of manufacturers, and in a majority of mills it was not possible to get over 60 to 70 per cent. of normal output. In fact, most mills could not get above 60 per cent., and in several instances output was closer to 50 per cent. of normal production. Scarcity of labor and yarns were the chief problems, but of scarcely less importance was the lack of knitting needles.

Labor at no time was plentiful, and heavy inroads were made by the drafting of men for military service. Female labor was employed in greater numbers than ever before, but in the finishing rooms the use of inexperienced help proved more of a handicap at first than an aid. Wages were advanced time and time again, and conditions were made as pleasant for the operatives as human capability would permit. Despite the various attempts of manufacturers to placate labor in its various demands, the attractiveness of war industries, such as munition factories, ship yards and the like, was seemingly resistless to mill employes and many of the latter left the mills to take advantage of the abnormally high wages paid by the war plants. The advancing of wages in the underwear mills too proved as much a handicap as a help to production. Scores of employes when they had earned sufficient to suit their desires for any one week declined to work the rest of the week, and in the summer demands for vacations and days-off by the female employes were insistent and resistless. Bonuses for steady employment partially checked this evil, yet all through the year the labor problem was an unending source of trouble to production.

YARNS HIGH AND SCARCE

Until the Government took action in the yarn situation and saw that mills employed on war contracts got their necessary supplies, manufacturers were continually disturbed by the difficulties surrounding their attempts to keep covered with yarns. So far as their production of war garments was concerned they were relieved of this trouble by the action of Government officials in giving priority rights to Government work. On their civilian production, however, they were continually in hot water. Seldom were manufacturers able to place any great reliance on yarn prices in figuring costs, for they were continually meeting demands from spinners for higher levels. Such uncertainty continued until the establishment of maximum levels. The fixing of prices removed the uncertainty of yarn costs, but until near to the close of the year deliveries of yarns were more or less uncertain, and production consequently was disturbed.

NEEDLE SCARCITY CAUSES LOSS

Fully as prominent as the labor and yarn problems in checking production was the acute scarcity of knitting needles. In many instances, because they could not secure a sufficient supply of needles mills were forced to close down departments for several days at a time. The shutting off of German supply left a large hole in the supply here, and while domestic production was materially increased it did not reach a volume where mills could be certain that they could replenish their supplies whenever necessary. The situation was relieved somewhat by the intervention of the Government, and the action of needle manufacturers in combining their resources to increase production. Japanese sources were turned to in the attempt to further alleviate the scarcity, but the quality of Japanese needles proved disappointing to the mills that purchased them, and in most instances such stocks were given up as hopeless. Government action in this matter applied only to the needs of manufacturers for war orders, and while it relieved their situation, the mills producing civilian garments were unable to secure a supply of needles sufficient to allow uninterrupted production. Manufacturers experienced further troubles within the mills in connection with needles. Prices had reached a high point and supplies dwindled quickly; it was the often expressed belief that operatives stole the needles and sold them.

Many other difficulties have interrupted production from time to time during the year. During the winter and early spring power was not easily procurable and shut-downs because of this were added to by the edict of the Fuel Administration creating heatless Mondays. It is estimated that mills did not operate more than half of the month of February, through the combination of heatless Monday and holidays. Late in the year the influenza epidemic added to the worries of manufacturers who were endeavoring to keep production up to schedule, and in several instances mills closed down entirely for a period of one to two weeks. The mills in the Mohawk Valley of Northern New York State were severely hit by the epidemic, and production was set back nearly a month because of the illness alone.

Combining all these obstacles to production, mills in most instances closed the year fully five months behind on production.

GOVERNMENT DOMINATES THE MARKET

Underwear manufacturers had but a single customer for the greater part of the year, and instead of having to canvass that customer for business had to subordinate all other orders. This customer was the Government, and now that his purchasing is over manufacturers give all credit to war needs for turning what at the outset appeared at best a doubtful year into one of profit. Figures are not available as to the exact amount of merchandise purchased for our troops, but some idea may be gained when it is known that after the troops had been fully equipped there was a surplus in the hands of army officials on November 1 of 24,285,815 pairs of summer drawers, 21,050,798 pairs of winter drawers, 27,075,892 summer undershirts and 17,427,280 winter undershirts, an amazing total of 89,839,785 garments. In addition to the army purchases, the navy was also a prominent customer, and its orders placed at different times during the year are estimated to have taken millions of garments.

The year opened with the belief that the Government was to be the important factor in the market. The disquieting feature of the situation, however, was the lack of definite knowledge as to how extensive the Government's requirements would be. Rumors varied between the report that the Government was well covered to the report that it would need enormous amounts of merchandise. Buyers, of course, were inclined to believe the former rumors, and were constantly in the market during the first month or two seeking to place orders. Sellers, however, were not in a particularly receptive mood, because of the uncertainty attending Government operations, and took but a small portion of the proffered civilian business, and in the acceptance of such orders would give no guarantees as to the time of delivery.

Wool lines were the chief interest to buyers in January and demand exceeded supply by many times. War orders were carried over from late 1917 and additional business of this character placed. Few mills were able to care for more than ten to twenty per cent. of the civilian demand, and to equitably distribute this production among the trade orders were taken only from previous customers and on an allotment basis. There was a continual scouring of the market by jobbers for merchandise, and whenever an odd lot made its appearance there were a score of buyers hungry for it. Prices meant little in comparison to the ability to secure merchandise, but to the credit of sellers it must be said that they took no unfair advantage of the situation and advanced prices only in proportion to the higher production costs.

Toward the latter part of February Government purchases of wool underwear had increased to such an extent that this merchandise was taken entirely from the civilian market. Additional civilian orders were necessarily refused and deliveries on orders previously taken had to be deferred. At that time it was estimated that Government orders had reached a volume that would absorb the entire production of wool underwear until the end of October. Delays and curtailment of production in the mills, however, were so numerous that mills were unable to keep up with the Government schedule of deliveries, and the year closed with a portion of these contracts uncompleted.

ENORMOUS BUYING OF COTTON GARMENTS

Not only was the Government a heavy buyer of wool underwear, but in February it came into the market in an active manner for supplies of cotton garments, both heavy and light weight. So large were the requirements that the buying committee gave up the idea of placing contracts with the mills, and in its place apportioned contracts among the mills as a whole in a manner to take advantage of the entire productive ability of the mills. Through a previously taken census of the mills' equipment, the knit goods section of the clothing and equipage division of the Quartermaster's Department knew just what each and every mill could do, and each plant was advised as to the quantity of merchandise the Government would require from it.

Manufacturers responded with a heartiness characteristic of all American co-operation for the successful prosecution of the war. Jobbers were notified that their orders would have to be deferred, and the industry as a whole mobilized for war. With the coming of April the military officials of the country increased our military forces to practically double their previous strength. While much of the underwear requirements of this enlarged army had been anticipated in previous buying, it was necessary to place a considerable amount of new business. Mills by this time were covered almost to entire capacity for months to come, and Government buying had no alternative but to turn to the jobbers. Every garment that the jobbers owned that could be used by the soldiers was purchased at a fair profit to the owners, and all similar merchandise in process or being delivered was likewise taken. For a while it appeared that the Government would have to go into the retail stores to add to their purchases, for troops were coming into the camps and underwear was needed immediately. Deliveries from the mills added to the garments purchased from jobbers, however, satisfied the requirements and it was not necessary for the Government to become a retail buyer.

Not only were the mills regularly manufacturing men's garments for the Government, but a large proportion of women's machines were changed over to permit the manufacture of war garments. Difficulties of a mechanical nature and non-mechanical nature were encountered in the production of men's garments on women's machines. Heads for the machines were difficult to secure, for there had been a heavy consumption of these and the machinery manufacturers were pushed to their utmost in keeping production up to demand. Employes of the mills were untrained in the finishing of men's garments, and it was no sinecure to teach employes or to secure competent instructors. However, such difficulties were overcome and the production of garments for the Government was materially enhanced by the mills pressed into the service.

Conditions continued in this way until close to the end of July, with the Government placing additional orders whenever an opportunity was presented, and in all this time the civilian buyer was a negligible factor. Toward the end of July the manufacturers were advised by the Government purchasing officials that the needs were well covered and that they could start to take civilian business for the spring. It was stipulated, however, that such business could be taken only subject to further Government needs. Conditions surrounding yarn and production costs were so uncertain at that time that but a few mills opened their lines. The mills that did show merchandise could take new business only on an allotment basis.

Until mid-September the Government

was the only real factor in the market and civilians could have only such small amounts of stock that became available now and then. After July, however, the army stopped taking seconds and these were offered to the civilian trade. For a while they met a ready sale, but prices were so high for this description of merchandise that buyers soon lost their enthusiasm and it was difficult to find a market at the level sellers were demanding. In September came the announcement that the Government had fully covered its needs for underwear and would place no more orders; that is, no official announcement was made, but such advice was given to contractors who inquired of the purchasing officials. Then mills began arrangements for the taking of civilian orders, but again unsettled conditions influenced manufacturers to go slow. Conferences between selling agents and manufacturers were frequent and it was not until late in October that lightweight lines were shown, and then but four or five lines were opened at about $5.50 for lightweight balbriggans.

Shortly after the signing of the armistice cancellations of Government contracts started, and no little excitement was created by the speculation in the market as to what course the Government would pursue in stopping orders. The announcement that all goods in process would be taken, and in addition the Government would accept an amount equal to two weeks of contracted supplies, relieved manufacturers, for that meant most of them would come near to completely running out their contracts. Mills then were ready to take civilian business, but the anticipated demand failed to develop. Unsettled conditions in industry generally, as a result of the unexpected ending of the war, caused buyers to refuse to operate and to defer their purchasing until the situation became clarified, and so the year ended with the market quiet after eleven months of almost hectic excitement.

NAINSOOKS OUT OF MARKET

Knitted underwear was not alone in commanding the attention of Government buyers, for nainsooks shared in a proportional way. During the days that knitted underwear was difficult to buy the army officials turned to nainsook garments and bought generously of such stocks. In addition there was a huge demand for the nainsook fabric for surgical bandages and other war uses. As a result but an extremely small amount of nainsook underwear came upon the market. Manufacturers never opened lines in the usual sense of openings. They waited until they were able to secure the fabric and then booked only an amount of underwear orders that they could fill from the fabric on hand. In several instances previously large manufacturers of nainsook garments did no civilian business at all.

HARD TO MAINTAIN ORGANIZATIONS

One of the chief problems of manufacturers during the year was the maintenance of organizations and selling outlets that it had taken years to build up. The attractiveness of other employment and the many forced shutdowns of plants were continually losing employes of long standing. The extreme scarcity of merchandise for the civilian trade created an uninviting problem for sellers to solve in the placing of goods in the hands of jobbers who had been their customers for years, and at the same time keep their lines well distributed throughout the trade. Most mills adopted the policy of allotting goods on a basis proportionate to purchases in previous years of their customers, and it was seldom that any one buyer was able to get more than 10 per cent. of the merchandise he came into the market to buy. Jobbers, however, were soon to realize the situation confronting manufacturers and considerable friction was avoided by the attitude of jobbers who took what was available to them and went on hoping though not insisting for more.

Prices during the year showed substantial advances from previous years, yet prices meant little to buyers and were secondary to their ability to secure merchandise. Production costs were high at the beginning of the year and kept mounting steadily through advancing yarn prices, higher wages and the enhanced cost of practically everything going into the mill.

Hosiery's Year Governed by War

Conditions Make Production Difficult and Restrict Trading

HOSIERY conditions throughout the year were typical of the textile industry as a whole; that is, they were governed almost entirely by war conditions. The Government was the important factor so far as buying was concerned, and when our country got into the war in earnest and sent a large fighting force abroad then all business was subordinated to war requirements. Not only were civilian consumers handicapped in securing merchandise by having the preference given the Government, but their opportunities to buy were further lessened by the many restrictions on production that developed throughout the year. Combined scarcities of labor, yarns, fuel and equipment raised havoc with the productive ability of mills, and in few instances were the latter able to get more than 60 per cent of normal output.

Such conditions necessitated various changes in previous merchandising methods. Seasonal openings and selling of lines gave way to the booking of business on a parity with the amount of hosiery manufacturers were positive of making, and deliveries were limited to short periods. Merchandise was generally sold f. o. b. mills; and selling terms were less liberal in discount allowances and dates of payment. Business was not sought for, as it was more difficult for selling agents to find goods for their market than a market for their goods. Jobbers who in previous years had widely distributed their contracts found it difficult to buy, for selling agents were confining the small amount of procurable goods to previous customers, and allotting merchandise in a manner best adapted to sustain previous reliable selling channels.

OBSTACLES TO PRODUCTION

The difficulty that manufacturers were unable to solve throughout the greater part of the year was keeping production up to a scheduled amount. Few mills found it impossible to devise any method that would prevent a loss almost every month in their output, and during most of the year production did not exceed more than 60 per cent. of normal. Labor, yarns and knitting needles, all of which were decidedly scarce, were the chief obstacles. Then there were heatless days, transportation difficulties and the influenza epidemic to add to the already aggravated situation.

Yarns were a constant bother to manufacturers. Always scarce and difficult to buy, it was not possible for mill men to place any faith in their ability to cover ahead for any protracted period. Prices were continually advancing, and time after time inquiries for yarns developed higher asked figures than were quoted but a day or two previous to the inquiry, and invariably when manufacturers placed orders the prices were again higher. Such conditions almost entirely disorganized the trade, and manufacturers were not able to quote hosiery prices unless they were fully covered on yarns. For the big organizations with plenty of capital and borrowing ability this was not an extreme hardship, but for the small mills with limited financial resources the situation was extremely embarrassing. Price fixing on yarns by the Government removed the uncertainty as it applied to costs, but did little in enhancing the supply. And the fixed levels were extremely disappointing to manufacturers for instead of lowering prices on hosiery counts they were advanced in a substantial manner. At the time hosiery interests were disgusted with the action of price fixing officials and were not backward in expressing their views.

Knitting needles were a never ending source of trouble, and despite heroic exertions of domestic makers of needles to increase production, supply was always less than demand. The situation affected the production of Government hosiery so acutely that official intervention followed, and from then on mills engaged on war contracts were able to secure the needed supplies. But this reacted on mills making civilian hosiery, and they found it more difficult than ever to secure needles. Japanese products were tried out and found wanting. They were not correctly tempered and frequent breakage caused losses in production too great to warrant their use. Large lots were rejected, and importers left with a substantial amount of unsalable goods.

During the late winter and early spring the closing order of the Fuel Administration caused a further reduction in output. Priorities given Government work added to the handicaps to civilian production.

CONDITIONS DO NOT IMPROVE

The conditions outlined above did not improve throughout the year, and at no time was it possible for jobbers to operate in a free manner. The only exception was women's coarse lines. The manufacture of the finer qualities became so difficult that many mills changed their machines to the coarser gauges, with the result that there was a proportionately large supply of 176 needle women's goods. Demand was never as large as supply, and prices did not show the relative firmness of the finer lines.

By the middle of February manufacturers were so at a loss to know definitely what their productive ability would be, and what their manufacturing costs would reach, that they limited the acceptance of new business to a three months' period. Not only did they so limit delivery periods but orders were taken on a basis of actual production. Previous customers of course, were given the preference and jobbers who had no steady buying channels found it extremely difficult to secure merchandise. In June the situation had deteriorated so that a majority of the mills limited the acceptance of business to 30 and 60 day periods.

A nominal buying interest in cotton hosiery at the start of the year had in June developed into an active inquiry and the placing of orders wherever and whenever possible. Men's socks and children's hosiery were the most actively sought, and the most difficult to secure. The Government was taking large quantities of socks and naturally getting the preference in deliveries.

Because of small profits in normal years many mills had discontinued the manufacture of children's lines, and production had so dwindled that it was far less than demand. Prices rose steadily until grades that in normal years sold for 60c a dozen reached $1.65 a dozen, and better qualities touched $2 a dozen. Selling levels were changed to a rise of 10c. and a fall of 5c on size 7. In a few instances mills added to their equipment, but the belief that prices would recede to near the old levels after the war checked any substantial increase of equipment of mills making such lines, and all year there was far less merchandise available than was inquired for.

Women's hosiery of the finer gauges was scarce for the greater part of the year, and jobbers were successful in only a few instances in fully covering their requirements. The difficulty in securing the finer counts of yarns, combined with their high prices, and the lack of experienced help influenced many manufacturers to change their machinery from the production of the finer qualities to the coarser gauges, particularly 176 needle goods. So extensively were the coarser guages produced that a surplus developed, and many selling agents had considerably more merchandise to sell than for which they could find a market. Prices were firmly held as a rule because of the high manufacturing costs, yet in a few instances lower prices were offered as a stimulant to buying. Demand was of a more or less desultory character, except in the early spring when a demand suddenly started for cordovan and gray shades in mercerized lines. Jobbers sought goods that could be delivered promptly, and selling agents with such merchandise on hand found a ready sale at from $2.15 to $2.45 a dozen.

What was lacking in domestic demand for women's lines, however, was partially discounted in a comparatively active sale to exporters. The latter wanted the finer lines and were constantly in the market. Boot silks and mercerized goods were bought whenever available, and at strong prices. Lack of shipping space restricted exporters and with a considerable amount of merchandise held in warehouses in the city awaiting an opportunity for shipment, they stopped buying. It was intimated to selling agents that there was an active market for American hosiery in South Africa, Australia and South America, and exporters further intimated that as soon as they were able to secure shipping space they would be in the market again for substantial amounts of hosiery.

The scarcity of men's socks was the

acutest of all, and for the greater part of the year jobbers were able to buy but a small percentage of the merchandise they wanted. Until the Government stopped buying late in September it was almost impossible for jobbers to secure wool or cashmere socks of any description. Opening of cotton lines was deferred several times, and finally to protect themselves manufacturers adopted the policy of selling only such amounts of merchandise as they felt capable of producing in a given period. A small demand at the start of the year had by the summer developed into an active inquiry. Jobbers scoured the market, and orders were placed wherever opportunity presented with prices but a secondary consideration to the ability to secure deliveries. Production was delayed time and time again by causes beyond the control of manufacturers, and the latter in several instances found it necessary to cut previously taken orders. Bundle cotton socks were extremely difficult to buy, and western jobbers resorted to purchases from New York jobbers, often paying more for waste yarn socks than was quoted in the market on clear yarn lines.

GOVERNMENT DOMINATES MARKET

Government purchases were the dominating factor in the market almost the entire year. Late in 1917 extensive orders had been placed by the army for wool socks, and these orders extended well into 1918. There was some uncertainty as to whether the Government would increase this buying and jobbers were in the market seeking merchandise. Manufacturers were inclined to go cautiously and to take only a few orders from previous customers. The first week in February all the uncertainty regarding war orders was clarified, for selling agents and jobbers were instructed to ship immediately all the wool hosiery they had in hand or on order to the Government, regardless of the quality of the goods. They were given until Feb. 5 to ship the goods, and to expedite delivery were permitted to work on a heatless Monday. Again in July orders were received to deliver all worsted half hose to the Government, regardless of color or quality. These goods were needed to cover emergency requirement of troops sailing for overseas service.

Contracts were being placed right along with the mills by the army for wool socks, and such buying was extensive enough to take the entire production until the end of October. Mills were given every encouragement to increase their output, and priority was allowed on all their requirements. Wool was supplied through Government channels, and wool spinners instructed to give preference on deliveries to Government work. Unavoidable delays in production made it impossible for manufacturers to keep up with the schedule of deliveries sought by the army officials, and most contracts would have extended to the close of the year were it not for the sudden ending of the war and the cancellation of war contracts.

While the Government's activities in the market were largely concerned with wool hosiery, there was also a rather voluminous buying of cotton socks. Orders for the latter were first placed in May, and from then until September war contracts were continually being placed. During that period jobbers were forced to content themselves with such merchandise that mills could make in addition to their output for the Government. In the majority of instances jobbers were satisfied to subordinate their wants to the needs of the Government. There were a few, however, who did not accept the situation in good grace, and complained of deferred deliveries. They were answered in the statement of one manufacturer that "I am telling my trade I cannot deliver the goods to two different parties. The Government comes first and you are at liberty to take any action you see fit on my giving priority to Government orders." It was significant that no jobbers cared to air their grievances in court. In September the Government let it be known that they were covered on cotton socks and would do no more buying. Contracts were far from completed, however, and manufacturers did little in the way of selling to civilian buyers.

ARMISTICE BRINGS CHAOS

The sudden ending of the war when the armistice was signed brought about a situation bordering on chaos. Jobbers who were carrying high-priced contracts came into the market to cancel them, and few selling agents escaped receiving numerous requests to cancel orders. Jobbers used the excuse of deferred deliveries, but selling agents believed that the high prices were the real reason prompting the desire to cancel. The market became panicky and in several instances cancellations were taken. To combat this development, a meeting of selling agents was held, and attended by several large jobbers and manufacturers. Optimism was expounded, and pessimism frowned on. Selling agents agreed that unless jobbers had sufficient cause, other than high prices, to cancel contracts the requests for cancellations would be refused. Within a few days the majority of jobbers were convinced of the lack of wisdom in refusing to hold to their orders, and cancellations were stopped.

About a week after the armistice was signed the Government began cutting contracts, but adopted such a liberal policy that it meant little or no loss of business to manufacturers. The Government notified contractors that it would take all goods in process, and in addition an amount equal to two weeks of contracted deliveries; manufacturers were given until March 1, 1919, to complete deliveries. War orders in a majority of instances were so near to completion that the method adopted by the Government meant that most manufacturers would run out their contracts.

Sweaters Have Spasmodic Year

Unsettled Conditions Make It Impossible for Placing of Large Business

SWEATER manufacturers faced problems throughout the year that at least were discouraging. Demand was never particularly active for any protracted period, and during the greater part of the year jobbers bought close to a basis of their actual needs. For short periods of time, usually one or two weeks, there would be a comparatively active selling and then demand would quiet off and it would be difficult to interest buyers at all. On the whole, however, most manufacturers report a fairly prosperous year.

Difficulties of various characters were frequently encountered, and acted as a check upon production. The most troublesome problem for the majority of manufacturers was to secure yarns when there was a demand, and to secure demand when yarns were available. This problem was never really solved until the ending of the war, and then it was too late, for business generally became disorganized and no one wanted to buy or to anticipate future requirements.

PRICES EXTREMELY HIGH

Based on advanced production costs, prices of sweaters were necessarily high, and particularly on the wool lines. Wool sweater yarns when procurable were held at levels previously believed impossible, and manufacturers had no other course than to pay the asked prices if they wanted the yarns. Deliveries by spinners were slow, and in many instances sweater manufacturers were never really positive whether they were actually going to get yarns or not. Labor was high priced and not easily procurable, and this combined with yarns made high sweater prices necessary. Jobbers were influenced considerably by the high levels to operate in a cautious manner and seldom did a buyer take more stock than he was quite positive of disposing to the retail trade.

With the progress of the war and the widening of our scope of activities abroad as well as in this country came an increase of tremendous proportions in our country's consumption of wool. The situation in the wool markets became such that it warranted Governmental intervention. This meant the taking over of the wool supply by Government officials and the allotting of the staple for purely war purposes. Sweater men were then shut off from further supplies, and as preference was given in wool yarn deliveries to Government work they were not able to get yarns. Because of the situation, sweater manufacturers early in May withdrew their wool lines from the market, and until mid-November no wool lines were shown.

CONSERVATION BECOMES NECESSARY

With the continuation of Government consumption of wool and the practical shutting off of the supply to sweater manufacturers it became necessary toward the end of the year to institute some scheme of conservation. This took form in the action of the conservation division of the War Industries Board, and in August a tentative schedule for conservation in wool sweaters was issued. This was to apply to lines for 1919, and called for the use of not more than 50 per cent. wool, the reduction in colors to a few stipulated shades, and the elimination of all unnecessary trimmings and decorations. Sweater men thought the schedule unnecessarily severe and in conferences between the war service committee of the industry and representatives of the knit goods section of the War Industries Board changes were suggested in the conservation schedule. The new suggestions permitted the use of 66 2/3 per cent. wool in garments, except on knitted wear for children under six years of age and to men's and women's sweaters weighing not more than eight pounds to the dozen; this provided that wools purchased before Jan. 1, 1919, were to be used, and from wools and yarns purchased after that date only 50 per cent. could be used in a garment. Samples were to be reduced to half the number used in 1917, sashes and double breasted types were to be eliminated, only two pockets allowed in men's and women's lines and none in children's, and the length of men's and women's garments was not to exceed 28 inches. These suggestions were approved and were to go into effect on Jan. 1, 1919, but with the signing of the armistice and the cessation of war requirements they were dropped.

Interest of buyers in women's lines early in the year changed from staple lines to fancy goods, and in March the latter were about the only descriptions selling. The market was so bullish that jobbers operated in a quiet manner, and though they were placing a large amount of business, but little was heard of it in the market. This quietness was assumed so that a jumpy market would not be excited and prices go to higher levels. Shetlands were the most wanted, and fancy colors the most attractive. Buying of this character continued rather active until June, when jobbers apparently had fully covered their needs and anticipated the future, and demand subsided not to be renewed in an active manner during the rest of the year.

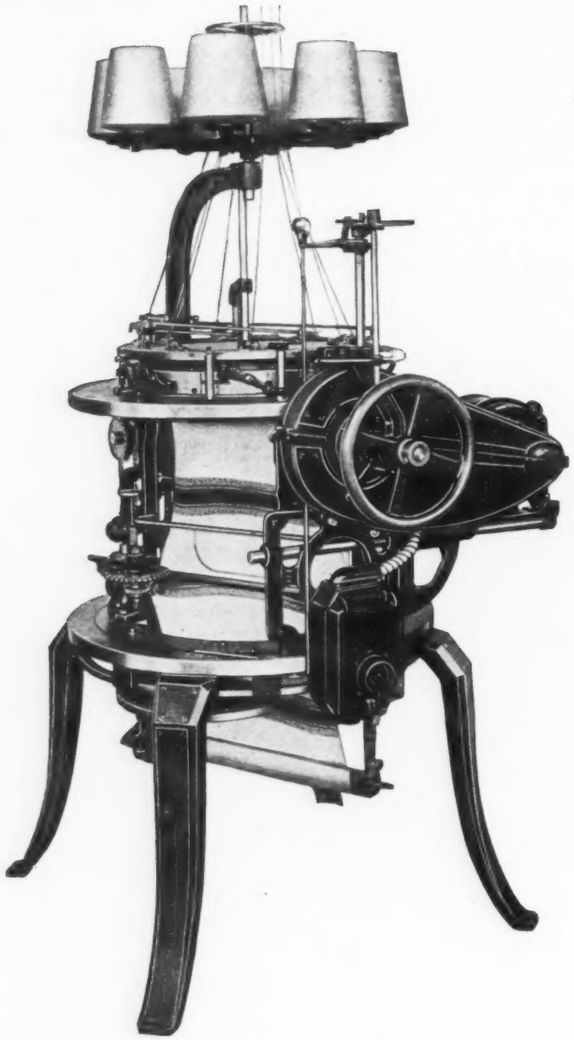
Trading continued of a more or less spasmodic nature until late in May, when it became evident that Government intervention of some sort would be necessary to clarify a muddled condition so far as yarn and wool supplies were concerned. The lack of definiteness as to the course such intervention would take was disconcerting to manufacturers and they were unable to determine just where they stood. This uncertainty continued until the wool clip was taken over by the Government, as well as all wool owned by dealers and that imported. No more wool was available to the civilian trade, and yarns could be secured only after all priority was given to Government contracts. Wool sweaters from that time were available to the civilian trade only on a basis with the stocks sweater manufacturers actually had in hand.

GOVERNMENT ORDERS EXPECTED

Hopes of sweater manufacturers for securing war orders were raised in March, when the rumor became current that the army was to add sweaters to the clothing issue of soldiers. How this rumor started no one really seems to know, but it was given credence by a large number of selling agents, and many of the latter were positive that it was true. Subsequent developments of this rumor were that the Government was inquiring as to the supply and prices of wool sweater yarns, and that it was accepting samples of sweaters and filing data of costs and production. No definite statement was procurable from Government officials at the time, other than that they were not instructed to buy sweaters for the soldiers. The latter hung fire until August, when at a meeting of sweater men in the Middle West the statement was made by Lincoln Cromwell, of the War Industries Board, that sweaters would not be purchased by the Government.

When the Government's conservation schedule was announced in October, several manufacturers made up lines composed of two-thirds wool and one-third cotton, and selling agents went out on the road. There was no large demand for such lines, and selling agents were too skeptical of their success to do much in the way of urging their purchase by jobbers. With the war's end in early November, and the knowledge that wool would be available to the civilian trade and the removal of all conservation restrictions, manufacturers withdrew these mixed lines from the market and made up their regular merchandise.

Wildman Motor Drive



Look this drive over, and then go out in your knitting room and form a mental picture of how it would look if all the machines were equipped with Individual Motors. Dangerous belts and unsightly line shafts done away with, bettering the light and adding to the convenience of the knitting department.

But the improved appearance of the knitting room is not the only advantage. The motor drive increases the production of the machines 10 to 15%, as the loss due to belt slippage is entirely done away with.

The drive can be attached to a Wildman Belt Driven Machine in a half an hour's time, by simply taking out the old side and slipping in the new drive complete. No drilling or tapping is necessary.

Wildman Mfg. Co.

Norristown, Penna.

Knit Goods Technical Section

Organization of an Employment Department

How the Black Cat Textiles Company Solved the Problem on Practical Lines

By *Eugene Szepesi**

THE year 1918, with its exceptional demand for labor, has again brought into prominence the problem of labor control and the various means and methods by which labor turnover can be reduced. In the textile industry, the Black Cat Textiles Co. of Kenosha, Wis., is among those who have given this problem serious consideration and have developed an employment department on simple yet effective lines.

NAME _____ SHOP NO. _____

ADDRESS _____

DATE OF BIRTH _____ CIVIL STATE _____

NATIONALITY _____ U. S. DOMICILE _____

EXPERIENCE

FIRM	FROM	TO	OCCUPATION	REASON FOR LEAVING	WAGES

FIG. 1. APPLICATION CARD ON WHICH ONLY A FEW QUESTIONS ARE ASKED

The problem of this organization was similar to that of other manufacturers employing mostly female labor. With the withdrawal of skilled workers for army service, and the opening of the gates to female labor in industries where previously only men were employed, this company had considerable difficulty in holding its female workers, when the financial offerings of other industries were much more alluring. To cope with the situation a careful survey of the conditions was made to determine what definite methods may be applied in the future.

WHAT THIS SURVEY HAS SHOWN

This survey soon disclosed that the exodus of workers, lured by the exceptional temporary offerings of other industries, cannot be stemmed successfully, and individuals inclined to consider the high temporary earning in preference to the steady and reasonably good wages offered by this company, will leave their accustomed places of employment in spite of everything.

This competition of other industries has also considerably depleted the number of apprentices, so necessary for the knitting industry.

As a conclusion, the main effort was concentrated on the less radical type of workers, to give them assistance through the proper adjustment of rates, standardized apprentice instruction, and by intensive physical and psychological care.

RESULTS OF SURVEY

To determine the cause of labor turnover, all individuals leaving their employment were interviewed by competent persons, and the results of such interviews tabulated. Eliminating the element lured by the higher earnings in other industries, all others fit into one of the following six classifications:

1. Lack of proper supervision or training.
2. Work unsuited to their personal characteristics.
3. Physical deficiencies preventing the acquirement of proper skill for the job.
4. Temperamental differences with fellow workers or overseers.
5. Psychological reasons.
6. Wanderlust.

It was disclosed that a great many deserters could have been saved for the organization by a timely knowledge of their troubles or intentions of leaving. But there was another element needing consideration which could not be reached through this method of contact; this is the dissatisfied but silent element, who are not inclined to leave their employment, even if dissatisfied, but struggle on with a job without ever reaching a reasonable earning ability, and consider their unsuccessful effort as a matter of fate. This element was reached through the factory nurse, who by her close association with the workers acquired a valuable knowledge of every individual.

This human material investigated disclosed the following facts:

The physically deficient comprise at least 70 per cent. of all industrial failures.

The remaining percentage represents a human problem, plain and simple, that can be mastered if someone takes a personal interest in the individuals. The future will prove that a sympathetic attitude is the great universal remedy of labor turnover.

Before any development work can commence, it is necessary to determine the requirements for each job. At the Black Cat Textiles Co. the occupations were divided into the following groups:

Winders,
Knitters,
Loopers,
Seamers, Turners,
Menders,
Form dryers,
Maters,
Boxers.

It is self-evident that each of above occupations requires specific physical and mental fitness, and unless due consideration is given to these factors no organization can hope for the attainment of high efficiency. The right worker in the right job is the keystone of a successful industrial organization.

The data obtained from this investigation is too voluminous to be repeated here. However, the main requirements for the above occupations can be recapitulated as follows:

WINDERS. — Quickness; freedom from physical ailment that would interfere with constant standing and moving.

KNITTERS.—Good eyesight, agility, good feet, small or medium sized hands.

LOOPERS.—Good eyesight, tapering fingers, good lungs, freedom from spinal trouble.

SEAMERS AND TURNERS.—The same as for loopers, without the exceptionally high requirements for eyesight and fingers.

MENDERS. — Reasonable eyesight; good job for heavy persons.

FORM DRYERS.—Strong constitution and good feet.

MATERS AND INSPECTORS.—Exceptional eyesight and freedom from spinal trouble.

BOXERS.—Same as for seamers and turners.

The above are the general physical requirements. Mentality, of course, plays an important part, and so does age.

A young person is more apt to acquire the art of knitting or looping than an

Date of Employment _____ Department _____

Name _____ Address _____

Age _____ Height _____ Weight _____ Condition _____ Living with _____

VISION	HEARING	MASTICATION	
Distant R			Lungs
Reading R 20 20	Distant R L		Respiration
			Throat
			Stomach
			Bowels
			Nervous System
CORRECTION RECORD	CORRECTION RECORD		Skin
			Disabilities
			CORRECTION RECORD

CONTAGIOUS DISEASES	VACCINATIONS		GENERAL CONDITION
Mumps	Smallpox	CORRECTION RECORD	
Measles	Typhoid		
Scarlet Fever			
Typhoid			

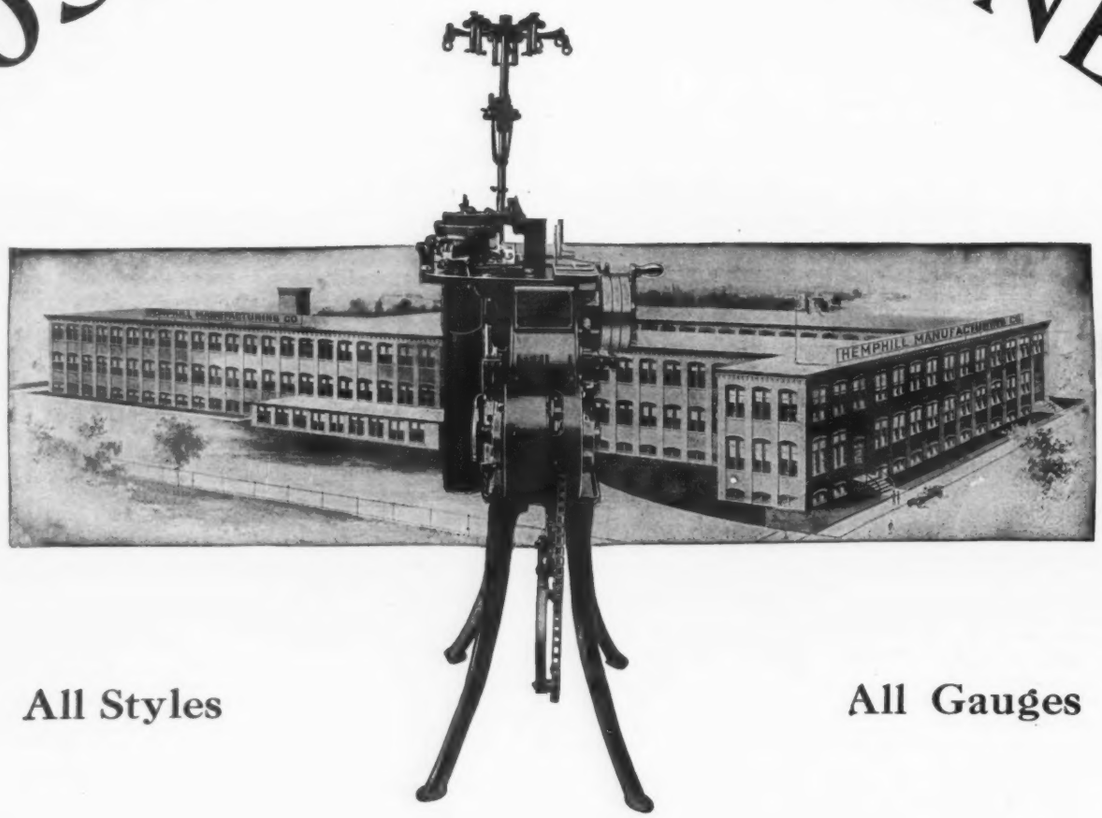
FIG. 2. RECORD OF PHYSICAL EXAMINATION ON WHICH ALSO THE CLINICAL RECORD OF A WORKER IS KEPT

* Of Cooley & Marvin Co.

BANNER

FULL AUTOMATIC

HOSIERY MACHINES



THE BANNER — TRADE MARK — ALWAYS FIRST WITH THE LATEST

THE BANNER — TRADE MARK — ALWAYS FIRST WITH THE LATEST

All Styles **All Gauges**

SIMPLICITY—SPEED—PRODUCTION—QUALITY

Four important things to consider when buying hosiery machinery

ALL PARTS ACCESSIBLE FROM FRONT OF MACHINE

Write for particulars and samples of work.

HEMPHILL COMPANY

Main Office and Factory: PAWTUCKET, RHODE ISLAND

New York Office: Room 601 Leonard Bldg., 350 Broadway, New York

Philadelphia Office and Showrooms: Rooms 208, 209, 210, Colonial Trust Company Building, 13th and Market Sts., Philadelphia, Pa.

older one. Again, age is not an important factor for winding, mending, mating or boxing. Form drying requires a robust constitution but meager mentality. These are the rough outlines of the general requirements. What important part physical defects play in industrial inefficiency is illustrated by some of the individual cases investigated at this plant.

DEFECTIVE EYESIGHT

A learner in the looping department was considered hopeless. During an interview she complained of frequent headaches and gave them as the reason for her backwardness. A physical examination disclosed that her eyeglasses were purchased in a department store, and these being unsuitable were the cause of her trouble. After being treated by a competent oculist, the headache disappeared and the worker's efficiency materially improved.

An experienced knitter, notorious for high percentage of seconds and small production, was found to be practically blind in one eye. This young woman, a widow with a child, had put up a brave fight against adverse conditions. Six months previous to the discovery she broke her glasses and could not afford another pair, the neglect resulting in the inflammation of the optic nerves, destroying the usefulness of the one eye. This party, after being supplied with proper glasses and having her eye treated by a physician, showed considerable improvement, and her mental stress was greatly relieved through her higher earning capacity.

Similarly many other physical shortcomings were traced back as the cause of inefficiency with the accompanying dissatisfaction, also the desire for the change of employment.

Next to bad eyesight, imperfect teeth was the most important factor of inefficiency. Of 500 employes examined, not more than 2 per cent. had perfect teeth. The majority showed such fearful neglect that the extraction of all teeth was the only remedy. Indigestion and other organic troubles were the result of such fearful conditions, with the consequent reduction of personal efficiency.

OTHER SOLUTIONS

In quite a number of cases it was evident that the individual was better suited for other occupation and a transfer into the more suitable department has solved such problems satisfactorily.

Family, financial and personal troubles are other causes that decrease the efficiency of a worker, and in such cases a sympathetic attitude and minor assistance on the part of the management has proven the remedy.

Bad habits was the next factor of importance. In one case inefficiency, carelessness, as well as the desire to change occupation, were due to insufficient sleep and excessive fondness for dancing.

Workers living away from their families are a problem of their own. The lack of wholesome social life and recreation proved to be just as much a factor in labor turnover as the physical and psychological causes.

THE DEVELOPMENT OF THE CONTROL ORGANIZATION

It is evident from the facts presented that a mere stereotyped set of employment forms, as frequently used in the past, will not solve such problems, and the first requirement is the creation of means which will systematically guard against all factors that cause inefficiency, dissatisfaction and large labor turnover.

At the Black Cat Textiles Co. the employment and welfare department is divided into three sections.

CLINICAL DEPARTMENT. — In charge of a trained nurse, entrusted with the examination of new workers, the maintenance of the clinical service, the supervision of the mill hygiene, the visiting of absent employes, and the arrangement of lectures pertaining to the importance of physical care.

EMPLOYMENT DEPARTMENT. —In charge of an employment manager. The proper assignment of new applicants, based on the physical examination and a set of standardized tests, is the field of an employment department. They must also constantly follow up the progress of each worker, and should an individual fail to reach reasonable efficiency or show decline of earnings and production, or manifest signs of irregularity, the cause must be investigated and a remedy found.

SOCIAL DEPARTMENT. — In charge of the nurse. This maintains a dining-room service and a recreation room where the workers are given opportunity for a wholesome social life, recreation and self-improvement during the daytime as well as in the evening.

These three divisions represent the average social industrial problem of today. At the Black Cat Textiles Company the administrative control and the routine have been developed with the aim in mind that the employes should not be subjected to petty annoyances, yet the records obtained should be sufficiently complete to serve their purpose.

This work is not yet completed, but the general control methods are sufficiently developed to serve as a use-

Service Investigation

DEPARTMENT	LEFT SERVICE	INTENDS TO LEAVE	FOLLOW-UP DATE

NAME

ADDRESS

REASON

PROCEDURE OF FOLLOW-UP

FIG. 3. SERVICE INVESTIGATION RECORD

Date of Employment Department

Name Address

Age Height Weight Condition Living with

VISION	HEARING	MASTICATION	
Distant R L	Conversation R L		Lungs
Reading R L	Distant R L		Respiration
			Throat
			Stomach
			Bowels
			Nervous System
Correction Record	Correction Record		Skin
			Disabilities
			Correction Record
VACCINATIONS		Correction Record	GENERAL CONDITION
Measles	Smallpox		
Mumps	Typhoid		
Scarlet Fever			
Typhoid			

Color	A. E. F. Number	Most Suitable Employment	1st Choice	2nd Choice	3rd Choice
Texture	English Knowledge				
Vitality	Nationality	STANDARD PERSONAL EQUIPMENT			
Fingers	Denomination				
Arm Length					
	Aptitude Shown During Employment				
Limb Length	Skill	LEFT EMPLOYMENT			
		Date			
Mentality	Reliability	Reason			
Appearance		New Occupation			
Dress	Ambition	Desirable			
Character		Undesirable			
Education	Intelligence	PROMOTIONS AND ADVANCEMENTS			
Comprehension					
	Causes of Personal Inefficiency				
Likes and Dislikes					
Special Characteristics					

FIG. 4. RECORD FORM USED BY EMPLOYMENT DEPARTMENT

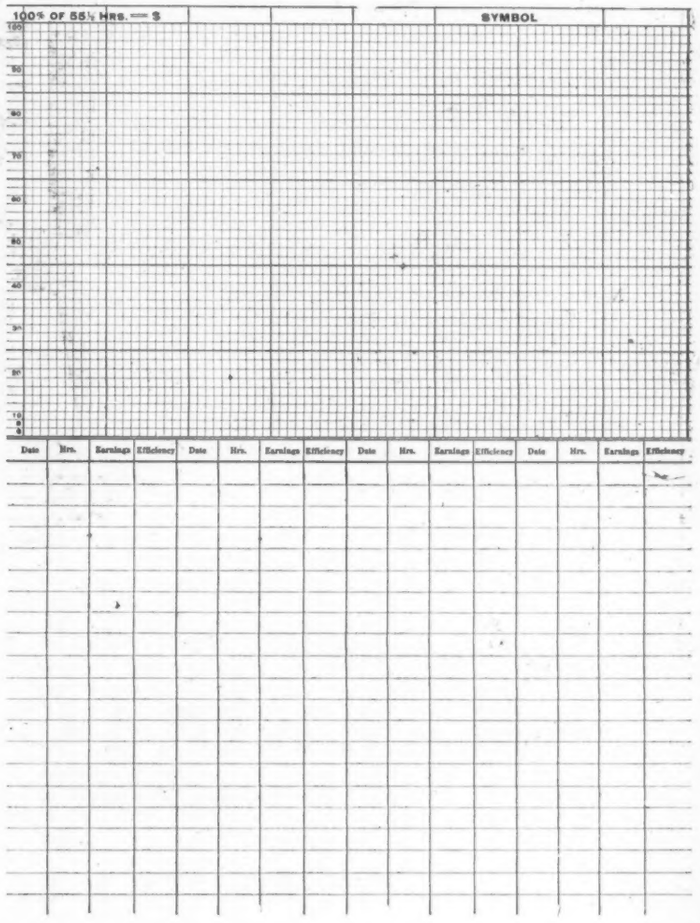

100% OF 55½ HRS. = $
SYMBOL
Date Hrs. Earnings Efficiency Date Hrs. Earnings Efficiency Date Hrs. Earnings Efficiency Date Hrs. Earnings Efficiency

FIG. 5. REVERSE SIDE OF EMPLOYMENT RECORD, SHOWING THE WEEKLY EARNINGS AND A GRAPHIC RECORD OF WEEKLY EFFICIENCY

Brinton Model "C"

Hosiery Knitter

Five Finger Yarn Changer, Including High Splice and Double Sole.

Positive Clamping Device Controlling Yarn at the Needles.

Rocking Sinkers Making Best Fabric.

Revolving Needle Cylinder Quickly and Easily Removed.

Non-Friction Needles under Perfect Control.

Easy Angle Pickers. Minimum Needle Breakage.

Simple and Effective Loosening Device for Double Sole.

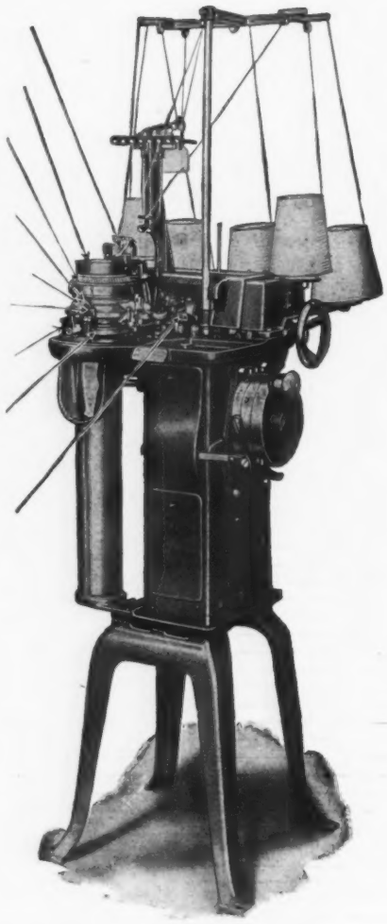
Easy Access Cam Ring. Quick and Accurate Adjustment of Cams.

Accurate, Convenient and Wide Range Adjustment of Stitch.

Needle Stop Motion Which Stops Machine Instantly if Latch or Butt Breaks.

Perfect Plating in Leg, Foot and Double Sole.

Patents Pending at Home and Abroad.



BRINTON QUALITY IN MATERIAL AND WORKMANSHIP.

ACTION OF NEEDLES AND YARN CHANGER EASILY VISIBLE FROM FRONT OF MACHINE.

SCREW ADJUSTMENTS THROUGHOUT.

SIMPLE AND EASY TRANSFER.

DIRECT AND ACCESSIBLE PATTERN CONNECTIONS.

FAST SPEED IN BOTH CIRCULAR AND RECIPROCATING MOTION.

DRIVING MECHANISM REMOVABLE FROM FRAME AS A UNIT.

REVOLVING CAN FOR STRING WORK.

RUN OFF EACH STOCKING IF DESIRED.

SEND FOR SAMPLES AND CIRCULARS

Machines will be sent on approval to responsible concerns

H. BRINTON COMPANY

PHILADELPHIA, PA., U. S. A.

FOREIGN SELLING AGENTS

GREAT BRITAIN and THE CONTINENT	SOUTH AMERICA	CANADA	JAPAN	CHINA
WILDT & CO., LTD.	LOS FABRICANTES UNIDOS	HARLEY-KAY, LTD.	ZENSEKI & CO.	GASTON, WILLIAMS & WIGMORE, INC.
Leicester, England	Belgrano 964	Georgetown, Ontario	Imabashi Dobnike--Kado	4 The Bund
	Buenos Aires, Arg. Rep.		Osaka, Japan	Shanghai, China

ful indicator for anyone interested in modern employment control.

THE HIRING OF THE WORKERS

At the present time all applicants are received in the office. Only a few questions are asked, and the answers are noted on the application card, shown at Fig. 1. Those familiar with various application forms in use will note that on this record all questions referring to personal affairs are omitted; nor are inquiries made regarding the state of health. The official entrusted with the work of interviewing job seekers must be sufficiently trained to judge an individual from outward signs.

The greatest fault of many application blanks is the great number of questions asked. These often result in untrue statements, caused by the nervousness or anxiety of the applicant. An employment manager, or an interviewer of labor, must possess an unassuming and sympathetic attitude, combined with a knowledge of human analysis.

The engaged worker is sent into the most suitable department and assigned by the foreman to the selected job. The importance of proper introduction or assignment of a new worker cannot be emphasized too much. All human beings are influenced by first impressions. The writer has found a number of instances where newly engaged persons came under the care of the disgruntled or dissatisfied; poisoning their minds at once to the undesirability of the job. Such mischief is easily made, and after it is done is difficult to correct. Care should be taken that a newly engaged worker is handled in a pleasant and encouraging manner and assured that he or she has an opportunity to make good and that the job is desirable.

During the day the factory nurse calls

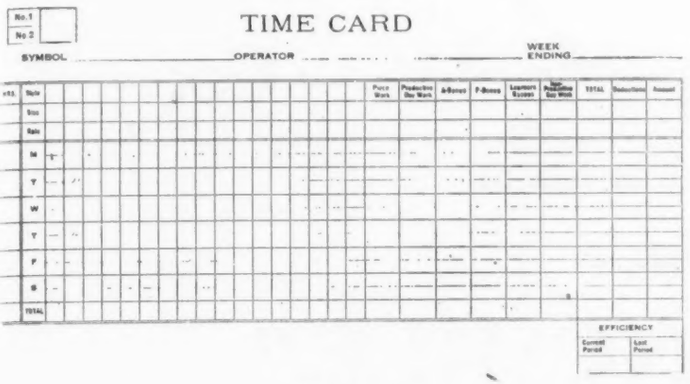


FIG. 6. TIME CARD

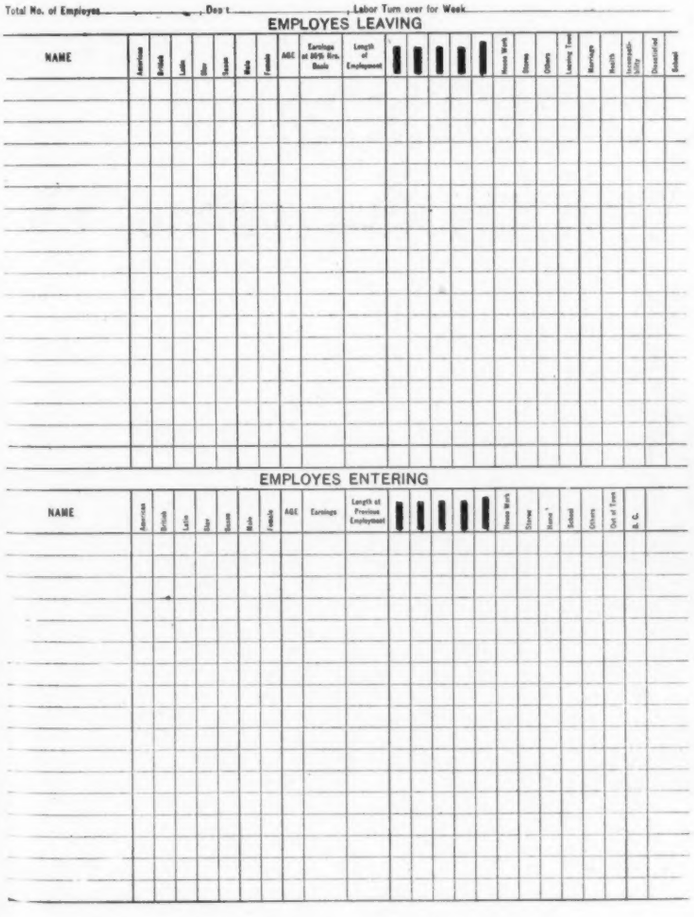


FIG. 7. ANALYSIS RECORD OF LABOR TURNOVER

SUPERCONES

IN THE SUPERCONE we have successfully modeled a supply for knitting machines which not only contains more material than any style of package previously produced, but also, by reason of its progressive build, insures a uniform delivery of material heretofore unequaled by either cone or bottle bobbin. The SUPERCONE is EIGHT INCHES long, with a possible maximum diameter of TEN INCHES. The net weight of a full-sized package ranges from FOUR to SIX pounds, depending upon the material wound. A cone of this size presents the greatest advantages for coarse counts, including sweater yarn.

Descriptive pamphlet on request of the

NEW No. 80 CONE WINDER

SHOP LEESONA MARK

UNIVERSAL WINDING COMPANY, BOSTON

Jenckes Knitting Machine Co.

Pawtucket, Rhode Island

Manufacturers of

The "INVINCIBLE"

Full Automatic Circular

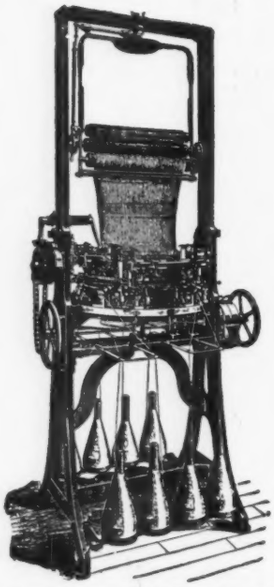
Seamless Knitting Machinery

CHARLES COOPER'S

Machine and Needle Works, Bennington, Vt.

Spring and
Latch Needle
Knitting Machinery
Plain and Rib
Circular and Flat

Spring and Latch
NEEDLES



Spring Needle, Rib Top Machine

for
Plain and Ribbed Underwear
Shirt Cuffs
Drawer Bottoms, Etc.
Balmoral Collarette Machines
Rib Cuff Cutting Machines
Automatic Rib Cutting and
Folding Machines
Burr Wheels and Burr Blades

Representative: G. H. ROGERS, 153 Ontario St., Albany, N.Y.

HOFFMAN KNIT-GOODS PRESSES

For Pressing

Underwear

Sweaters

Mufflers

Facinators

Shawls

Five Different Models

Demand the genuine and original Hoffman. Assure yourself of the protection of our patents.

For Pressing

Draperies

Curtains

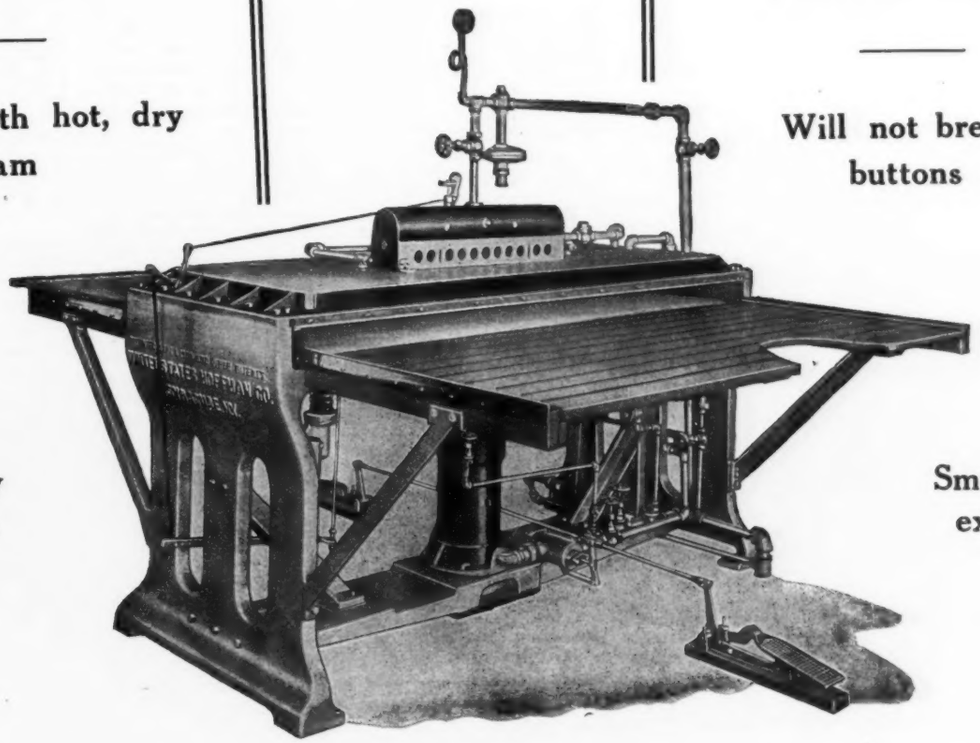
Hosiery

Jerseys

Cotton Goods

Sterilizes with hot, dry steam

Will not break buttons



Large daily production

Small daily expense

United States Hoffman Machinery Co.

(*Incorporated*)

Syracuse, New York

New York Chicago San Francisco

the new worker into the clinical department to obtain physical data. This task is admittedly a delicate one, especially with women. The nurse must possess such a personality that the examination and questioning can be performed in an unobtrusive manner, without offense or fatigue to the worker. A blunt, indelicate questioning would be the greatest mistake. Fortunately, the head nurse of the Black Cat organization possesses the necessary human requirements and her personality was greatly responsible for the success of the clinical department.

THE PHYSICAL EXAMINATION

The result of this examination is recorded on the blank shown at Fig. 2, which serves at the same time as the clinical record of the worker during the employment.

The actual physical examination is short and discreet. A simple vision test is made and the nurse is expected to have sufficient experience to judge whether the individual has a serious vision trouble that would disbar her from the occupation selected, or whether the services of an oculist would prove desirable. In the latter case the worker is taken to the oculist by the nurse herself at the first opportunity.

Any defect of hearing should be known, and for this purpose the ordinary whispering test is employed in such a manner that the worker is unaware that the test has been made.

The teeth are examined and their condition noted on the chart. Arrangements have been made with dentists to look after the teeth of the workers, but they may select their own dentist. It is not an exaggeration to state that the poor condition of the teeth of workers causes a greater loss of wages and production than the combination of all other physical shortcomings.

LACK OF VITALITY

Digestive troubles are mostly caused through bad teeth and an individual cannot do justice to a job while suffering from the effects of these troubles. The main cause, of course, is the lack of education, and the almost universal dread of the dentist's chair. Past contagious diseases should be noted, since they will leave an effect on the human body, and in most instances a lowering of vitality. A copy of this record is sent to the employment department.

CONTROL RECORDS OF CLINICAL DEPARTMENT

It has been found that the average turnover of a factory clinical department is about 100 per cent., contributed by about 30 per cent. of the employes. To what extent and for what purpose certain individuals call upon the clinical department is one of the most important forms of information. A factory clinic is far from serving its purpose by rendering mere physical comfort to the employes. It has a greater aim. It must weed out the total physical misfits, discover physical shortcoming and be instrumental in effecting permanent cures through advice, education or physical attendance.

The records should show the causes and their relative importance, serving as an indicator for future prevention. Two records are used. One is a "Daily Nurse Report" into which the name, the treatment and the character of the case is entered. Space should be provided for the entry of the other activities of the clinical department, and the record is arranged so that the daily total is automatically sub-divided into the various classes of ailments or accidents. These totals are entered every day into the "Monthly Nurse Report" closed at the end of the month.

T[illegible]lysis of this record is not only interesting, but has a direct effect on the efficiency of the workers. It has been found that constipation was an important factor. For its reduction an exhaustive campaign was inaugurated among the operators to show that proper mode of living and sufficient exercise is essential to insure physical harmony. This organization has for years maintained a bowling club, an example worth while to follow. In another instance it was found that many cases of colds were contracted by workers of a certain department. The cause was traced to improper ventilation, and this was improved, putting an end to the ailments. Similarly an analysis of the accident cases will point out weak links in the safety measures.

SERVICE INVESTIGATION

The nurse calls every day on absent employes and makes a report of her findings on the card shown at Fig. 3. It was found that besides rendering physical assistance when it is needed, absentees with intentions to leave employment often change their minds after a confidential talk with a capable person. Petty grievances, exaggerated by bad counsel, and minor difficulties can be speedily adjusted by a diplomatic individual. The service investigation of the Black Cat Textiles Company goes further. A record is made even of an intention or a notice to leave the concern, and adjustment is made, if possible, before a worker leaves the service.

During the trying times of the past year, when the demand for labor caused the troublesome high labor turnover, this service investigation method has proved the most effective counter-action for the management. The general procedure being that individuals who have given notice of leaving, or who were known to have such intentions, had an interview with the nurse, and if the result was unsatisfactory the departmental foreman, and later the superintendent, was drawn into the consultation. Exceptional conditions were brought to the attention of the general superintendent. This record is a continuous follow-up, and in many instances individuals who left the service and were followed up a few weeks later needed but a little encouragement to return to their previous employment, which step they would not have taken on their own initiative. These records also serve for the employment department as data on future available labor.

THE TASK OF THE EMPLOYMENT DEPARTMENT

A copy of the nurse's examination is forwarded to the employment department, where another record is made as illustrated at Figs. 4 and 5. This department's task is to obtain a close description of the mental and psychological make-up of an individual, such information to be used not only for the proper assignment, but to determine the characteristics, and thereby render assistance to the departmental foremen. This data is obtained without the knowledge of the worker. The person in charge casually calls on the worker in the shop, engages her for a few minutes in an indifferent conversation, and determines from the answers her proper status.

It is well known that the so-called psychological laboratory tests employed by many organizations are overdone, unnecessary and annoying. The method developed for the Black Cat Textiles Company does not go into elaborate tests, but all factors are graded into three general shadings and the individuals classified accordingly.

Fourteen factors are used in this method sufficient for the classification of an individual in this industry. On the record, the first square represents the highest; the second, the medium; the third, the lowest grade. For instance, vitality of an individual may be strong, fair or weak. Education good, fair or poor. Similarly all other characteristics are graded and check-marked on the record.

Further, provisions have been made for the notation of likes and dislikes and special characteristics of the worker, also for the attitude shown during employment as regards skill, reliability, ambition and intelligence. This information is obtained gradually by the department foreman.

There is also a special section for notations of the causes of personal inefficiency. If investigations prove the lack of progress on the part of the worker is caused through insufficient sleep, worrisome disposition, or exceptional dullness, etc., such personal inefficiencies are noted on the record for future use.

The most suitable employment for an individual of first, second and third choice is also marked down besides the standard personal equipment. The remaining space on the record is utilized for information referring to promotions and advancements, and if a worker leaves the employment, the date, the reason, the new occupation, and the desirability of the worker are noted.

Such records in the hands of the manager months or even years after will always serve as an unprejudiced and just description of a worker, and re-employment will be based on facts instead of on the faulty or prejudiced memory of individuals.

This is, however, only a part of the problem. The ideal is to prevent the accumulation of circumstances that will result in the curtailment of production, and the consequent reduction of earnings of the worker, and probably the loss of service. For this purpose it is necessary, that the employment department receive every week information of each worker's efficiency, and in case of a decline of earnings the cause is determined and every effort bent toward its elimination.

(*Continued on page* 403)

Labor Chief Problem in Readjusting Mills

Few Changes in Equipment—Industry on Higher Plane

By *Openshaw*

TO our mind, the things which are of greatest importance to the knitting industry in the future are, first, the labor situation; second, foreign competition; third, over production. We cannot help but feel that the labor situation is of most vital importance owing to the wonderful evolution which has taken place. The average manufacturer sometimes fails to realize that his greatest asset is his skilled workers and any action which tends to create dissatisfaction among them is attacking the industry in its most vital spot.

During the period of the war there have been employed various means of satisfying labor. Many mills have labored under the impression that conditions must return to normal after the war, and have hesitated to make a direct change in rates, but have satisfied their employes temporarily by paying bonuses in various forms, feeling that if necessity demanded it would be more practical to remove the bonus than to reduce the regular prices. Such plans have more or less merit. But the danger lies in the employer not using the proper discretion in removing the bonus. It is to be hoped the manufacturers will exhaust every other means of reducing costs before removing bonuses or otherwise reducing the price of labor.

PERSONNEL DETERMINED BY WAGES

There is no question but that many manufacturers fail to realize that the most efficient workers will work where they can earn the highest wages—other thing being equal. Therefore, the personnel of the working force of an industry is in a large measure regulated by the wages paid. The highest type of workers will always be found in the industries paying the best wages, and vice versa.

In order to raise the standard of the industry to an equality with other industries we must continue to compete in the labor market with other industries in times of peace the same as we have during the period of the war. This we would have no difficulty in doing were it not for the fact that the nature of the work in the textile industry requires operators of great skill. This applies particularly in the manufacture of hosiery and underwear. It requires many months of careful training before an operator becomes efficient in many of the operations in these industries.

Previous to the war, when the labor supply was plentiful and the cost of living was low, textile manufacturers had no difficulty in securing apprentices at a very low starting wage, and in some localities they were able to secure help who were willing to work without pay during the learning period. Due to the changed conditions, we now find that operators are no longer willing to learn on their own time, or even at a nominal price, but are demanding more in many cases than the most experienced operators were able to earn under normal conditions. This has resulted in its becoming almost impossible under present methods to get the new operator on a self-sustaining basis.

DAY WORKERS AND PIECE WORKERS

This is in our opinion a very serious situation. When we stop to consider that the average length of service of the female operator is only about three years under the most favorable circumstances, it will be readily understood that the entire working force of the average textile mill must be replaced every three years, or, in other words, one-third of the entire force must necessarily be apprentices, with a low percentage of efficiency at all times. Under normal conditions with a plentiful supply of labor, this was not a serious situation, but under present conditions, owing to the high starting wage, it becomes almost impossible to get the new operators on a piece-work basis, as they are perfectly satisfied to remain on a day-work basis. Therefore, unless some radical action is taken, the manufacturer will find that the majority of his operators will be working on a day-work basis, which means higher costs and a marked reduction in the production. What then are we to do to meet this situation?

If the present demand for labor is to continue, we certainly cannot reduce the starting wage. If we attempt to do this the labor supply will simply go into the industries which offer a more attractive wage and we will find ourselves with a

onstantly dwindling working force. The extile manufacturer must then continue o pay the price and must adjust matters o meet present conditions. Many of us ay make the mistake of thinking that onditions will return to the old level. his certainly will never come about, as e are now working under a new standrd and must meet these conditions.

GET WORKERS ON PIECE BASIS

What the manufacturer must do then s to permanently readjust his piecework prices, so that the present starting wage is in the same proportion to the earnings of the average efficient operator as the starting wage existing before the war was to the earnings of the average efficient operator at that time. If the average starting wage was $6 per week previous to the war and the average efficient operator was earning $12 per week on a piece-work basis, then under present conditions, if the starting wage is $12.00, the piece-work price should be adjusted so the average efficient operator can earn $24.00 per week. This would give the new operator the necessary inducements to go on to a piecework basis as quickly as possible, and we would be able to get the new operator on a self-sustaining, or piece-work basis, in approximately the same length of time as was required under the old basis.

HIGH WAGES ARE CHEAPEST

This, of course, must necessarily result in some of the older experienced operators earning a very high wage. But the practical mill man knows that it is the efficient operators that are earning him his profit, while the new operator, low in efficiency, has just the opposite effect.

Many manufacturers do not hesitate to pay new operators a high starting wage, yet will hesitate to make any radical increase in the piece-work price for fear efficient operators will earn too much money. What the manufacturer must learn is the fact that it is cheapest in the long run to pay the highest piecework prices possible, thus cutting down his labor turnover, having fewer new operators to train, reducing excess labor costs, making more satisfied operators, increasing production, raising the standard of his product, reducing his average cost, and improving conditions in general.

ATTENTION TO TRAINING WORKERS

In addition, we must give more attention to properly training or instructing the new operators. In the past, but little attention has been given to this most important matter; in fact, the new operator has been practically obliged to shift for herself, or has been placed with a poor operator who is herself dissatisfied; with the result the new operator soon becomes discouraged, does not make the proper progress, and soon drops out altogther. The United States Government has shown the way in this respect. In civil life it has been the general impression that it required three years for a young man to learn the machinist trade. The Government has, through intensive training, been able to develop first class machinists in from three to four months. This shows the possibilities of intensive training.

Where it now requires many months to train operators, we believe the time can be reduced to a matter of weeks under proper supervision and intensive training. Many mills have already realized the importance of this and have established training schools in departments separate from the main workrooms. The success of these schools, however, will depend altogether on the ability of the instructors. We expect in the near future to see training schools reach a high degree of perfection, and it will be only a matter of a short time when this phase of the business will be considered the most important department in the mill.

We believe then, that the solution of the labor problem is in our own hands and can be met without difficulty if given the consideration it demands.

DANGER OF FOREIGN COMPETITION

Next to the labor situation, we believe the most serious matter facing us will be foreign competition. Owing to the present chaotic conditions in Europe, we have nothing to fear in the immediate future. However, we must not forget how quickly France recovered after the war of 1870. Unless proper protective measures are passed, it will be only a matter of a few years when we must again meet foreign competition, keener than ever, due to our high labor costs. We must also not lose sight of the fact that we must meet a new competitor in Japan, who seems destined to enter the textile markets of the world in the near future. However, this is a matter entirely out of our control and we have no intention of discussing matters of a political nature in this article.

READJUSTMENT OF EQUIPMENT

The matter of readjusting equipment from a war to peace basis is not of great importance. We do not believe there has been any quantity of new equipment installed for war work which cannot be readily diverted to civilian work. Some changes must of necessity be made, but this should not seriously inconvenience us. The needle situation has been instrumental in holding back orders for new equipment.

There have been no radical improvements made in textile equipment in general. Manufacturers as a rule have been too busy on regular equipment and war contracts to give the matter of improvements the attention given in normal times. In fact, mills have had a tendency to operate obsolete machinery, owing to high cost of new machines and poor deliveries. This is a matter that should be given serious consideration, as with the present high cost of labor and raw material we must have the most improved machines. This is another way of meeting the high labor cost situation.

The danger of over production is a matter which must also be considered. Owing to the fact that foreign competition has been cut off, and also to the shortage of operators in the munitions districts, we have had an actual shortage of certain textile products, with the result that in textile centers which have not been subject to keen competition for labor there has been a considerable increase in capacity, and a number of new plants have been started. With the shutting down of the munitions plants, and the return of the skilled textile operators to their old jobs, there is a possible chance of over production on certain lines.

We can see nothing in the immediate future to cause any unnecessary alarm, and believe that future of the industry is extremely bright. We believe that one of the most important factors is that during the period of the war textile manufacturers have gained confidence in their ability to compete with other industries for the highest class of labor and at the same time demand a price for their product which will permit them to continue to do so and at the same time yield a satisfactory margin of profit.

WRITE TO

FLORENCE

THREAD CO.

FLORENCE, N. J.

IF YOU WANT

SEWING and SEAMING THREADS

Of any quality or size.

You are sure of getting exactly what you order in size and quality; accurate color matching; wound in any manner or length; mercerized or plain cotton. Prompt delivery guaranteed.

ALL COLORS

SPOOLS, TUBES or CONES

QUALITY—THE BEST
SERVICE—DEPENDABLE
PRICES—MOST REASONABLE

FOR MAKERS OF ALL KINDS OF SILK OR COTTON FABRICS

Soft finish cotton yarns; also glazed or polished yarns for warps or filling, in all sizes and colors, wound on spools or tubes, single or multiple ends.

FLORENCE THREAD CO.

FLORENCE, N. J.

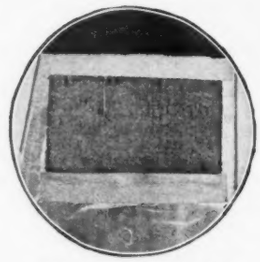
BELL TELEPHONE

"PARAMOUNT METHOD" FABRIC HOLDER

The features of this holder are:

It secures a uniform length;
It does not slow up production;
No disfigurement of goods;
Greatly improves the finish of the product;
It increases the drying capacity of the form, thereby making a saving in floor space and fuel;
Less work for pairers;
Goods lie better in boxes.

Terms for attaching holders on application.



PARAMOUNT METHOD FABRIC HOLDER

Our United States Letters Patent No. 1,279,332, dated September 17, 1918, covers this fabric holder.

You cannot afford to operate your mill without the economic advantages of Paramount Drying and Shaping Forms which are:

The saving of man power;
Increased production;
Decreased cost of labor;
Improved quality of work;
Improved working conditions for employes;
Elimination of seconds by boarding;
Flexibility of equipment, as forms can be quickly removed or adjusted to the table;
Saving of steam, power and floor space.

The following plans for installing Paramount Drying and Shaping Forms are given manufacturers:

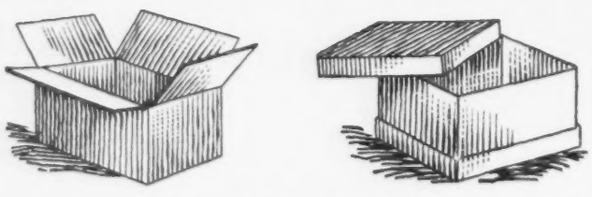
1. A flat monthly rental. 2. A per hundred dozen rental. 3. To purchase the forms

PARAMOUNT SERVICE GOES WITH PARAMOUNT FORMS

PARAMOUNT HOSIERY FORM DRYING CO.

Hunter Building, Market and Madison Streets, CHICAGO, ILL.

The Best Shipping Box for Knit Goods.



H & D CORRUGATED FIBRE BOXES

Are extensively used by manufacturers of hosiery and underwear for freight, express and parcel post shipping. The lightest, staunchest and most convenient shipping boxes on the market.

H & D Corrugated Fibre Board makes the lightest and best dress goods boards.

No sawing, nailing or litter in the packing room. No freightage to pay on heavy boxes. H & D boxes come to you folded flat, saving 90% of your storage room. Only a moment's work to set them up.

Write for "How to Pack It"
A free booklet that explains

The Hinde & Dauch Paper Co.

Philadelphia
305 Mariner & Merchant Bldg.

Sandusky, O.
450 Water Street

STANDARD TRADE MARK.

Longest Service
Finest Work
Fewest "Menders"
Fewest "Seconds"

STANDARD LATCH NEEDLES

are made by the largest manufacturers of Machine Needles in the world

BEHIND the product protected by this trade mark is the experience of 25 years in making Latch Needles for discriminating manufacturers.

The TORRINGTON CO., Excelsior Plant

Successor to EXCELSIOR NEEDLE CO.
TORRINGTON, CONN.

EXCELSIOR AGENTS
C. B. Barker & Co., Ltd., 140 W. 22d St., New York
Manufacturers' Supplies Co., Cherry & Juniper Sts., Phila.
C. Shawl, 682 Mission St., San Francisco, Cal.
J. C. Strittmatter, Ave. San Francisco No. 29, City of Mexico, Mex.

Economy of High Density Compressors

(*Continued from page* 191)

account of gin cutting and breaking of fiber; waste on account of air cutting by the heavy recompresses; waste by reason of too free sampling in what is known as the "city crop"; waste in ways usually termed "country damage" and "transportation damage"; waste in steamship and box car space; waste in storage warehouse space.

Believing that, as a patriotic measure in the conservation of transportation space, the time was ripe to accomplish what a generation of endeavor had been unable to accomplish under normal conditions, in the summer of 1917 TEXTILE WORLD JOURNAL inaugurated a campaign for high density compression. Then the National Association of Cotton Manufacturers tackled the problem. Together with other cotton manufacturing, handling, growing and compressing interests, and with the co-operation of TEXTILE WORLD JOURNAL, an intensive campaign was entered into looking to obtaining the high density bale through gin compression, or otherwise. Through their endeavors the War Industries Board was interested, and its extended and careful investigations led to a report completely endorsing the idea in both principle and practice. But the united efforts of this aggregation of interests failed to produce results. Old practices still prevail.

PROPOSE TO EQUIP PLANTS

Early in March, 1918, while the high density campaign was at its height at Washington, a proposition was made by a group of responsible business men to the Government, through the War Industries Board, something like the following: That the group of business men would undertake to equip a sufficient number of plants so that the entire cotton crop of 1918 might be compressed to a high density, provided the Government would: First: Order the payment by the cotton carrying railroads for heavy loading of freight cars of a sufficient amount of money per 100 pounds to cover the extra cost of preparing cotton so that a minimum of 50,000 pounds (100 bales) might be loaded into a standard box car for shipment.

Second: Cause a permit to be issued from the Capital Issues Committee to sell $15,000,000 of securities at the rate of $2,500,000 a month.

Third: Cause priority orders to be issued for making compress machines and use of materials therefor and transportation thereof to their installation points.

This movement was again blocked by the railroads, who thought they saw in it a diminution of their "about so much money" out of the cotton crop. They were strong enough to defeat the plan when it came up before the United States Railroad Administration.

THE FUTURE OF HIGH DENSITY MOVEMENT

The compressing of the entire cotton crop to a high density will involve a large capital expenditure in the purchase and installation of new and improved machinery. In order to bring this about and with it the enormous economic saving that will result, it must be made of interest to "somebody" to do it. There must be the money incentive, for the enterprise will not do itself. It would be stretching the limit of patriotism and philanthropy too far to expect it.

AUTHORITIES MUST ISSUE ORDER

As a business proposition in which, now that the war is over, considerations of patriotism will play but little part, it will be done when the regulatory power that governs the railroads, be it the Interstate Commerce Commission or the United States Railroad Administration, sees fit to issue an order to the cotton carrying railroads something like the following:

That hereafter the rate charged for the compression of cotton be uniform throughout the cotton belt.

That hereafter compressors receive a compensation of twenty cents per hundred weight for compressing and loading a minimum of 100 bales in a standard 36-foot box car.

That freight rates on cotton be forthwith increased with a view to securing a minimum loading of 100 bales in a standard 36-foot box car, in accordance with the 100-bale unit of purchase and sale now in force.

Stunned, temporarily, by defeat, the cotton organizations have been quiet of late in the matter. A second wind will, however, soon be taken and another try will be made. It seems to them there must be some avenue of approach not yet discovered that will lead to the solution of a problem of such obvious economic necessity.

SHOWING IN FIG. NO. 7 A "PLANTATION" BALE AFTER BEING PARTLY SAMPLED BY CUTTING THE BAGGING. THE OTHER SIDE HAS ALSO BEEN SAMPLED. FIG. NO. 8 SHOWS THE SAME BALE COMPRESSED TO A HIGH DENSITY BY THE TURNER HIGH DENSITY DEVICE AND PATCHED WITH SUGAR BAGGING. THIS BALE HAS SKIPPED THE INTERMEDIATE, OR "RECOMPRESSED" STAGE. "PLANTATION" BALES USUALLY HAVE BUT SIX BANDS. THE HIGH DENSITY BALES HAVE EIGHT.

Cotton Warehousing and Financing

(*Continued from page* 134)

subject of dispute, but is conceded to be the only proper method to be employed. It has the unqualified approval of Governor Harding of the Federal Reserve Board, who has repeatedly pointed out its value to all interests from the planter to the manufacturer. Paul M. Warburg, whose genius in financial matters is unquestioned, and to whom the country owes a great debt for his handling of our intricate war finances, heartily approves of this change and referred to the advantages of the system in his recent speech at Atlantic City. We quote as follows (from Mr. Warburg's speech): "I can well foresee the time when American dollar acceptances will be outstanding to the extent of more than one billion dollars in credits granted all over the globe. While it is most satisfactory to note that several discount companies and acceptance corporations have been organized, it is my belief that the future will show a very distinct need for a larger number of acceptance corporations."

Bankers and trade acceptances are the finest secondary reserve available. Acceptances can be used by the smallest domestic shipper to the largest foreign exporter. A greatly expanded credit will be available for the holder of cotton, whether manufacturer, dealer or producer. This benefit will be derived from the increased value as collateral given to the warehouse receipt by uniformity, stability and reliable description of the cotton represented by the receipt. The export trade of the whole world is financed by means of acceptances. With the powerful backing of the Federal Reserve Board their use is becoming more and more common every day.

CAN BE FINANCED MORE EASILY

The present cotton crop is estimated at 11,700,000 bales; this represents at 30 cents a pound a value of over one and three-quarter billion dollars; this amount under the old system of finance had to be met by the southern and northern interests directly connected with the production and manufacturing of the staple. The use of acceptances makes the solution of this problem much easier; in the first place, acceptances command a much more favorable rate, which means a saving to either the seller or the buyer or both; in the second place, acceptances make the credit of the country absolutely liquid and distribute the burden of financing to all sections of the country, as idle capital from all sections will seek paper of such unquestioned worth. They constitute the most liquid form of investment a bank can hold.

With the United States such a creditor nation the question of finance promises to be exceedingly acute and we must see that we get the maximum use of all our resources. The slogan "don't stop saving food" must be abbreviated into "don't stop saving." Thrift must become a national virtue, a priceless inheritance left to us by the war. The tremendous payments of interest on account of our loans must not be met by imports of manufactured material which may disturb our industrial life; this money must be invested in foreign obligations, both public and private. We are no longer an isolated nation, but have joined the group of international powers.

WOULD STABILIZE INDUSTRY

A warehouse system as outlined above, in conjunction with a broad use of acceptances, would standardize and stabilize the cotton industry. It is quite necessary that cotton be stabilized in order to keep labor in the fields; the South must continue to raise large supplies of raw cotton in order to supply the needs of the world and to make up for the wastage of the past four years. It would certainly minimize the violent fluctuations in the exchanges caused by speculation; these fluctuations in the long run are very harmful to the producer and manufacturer alike.

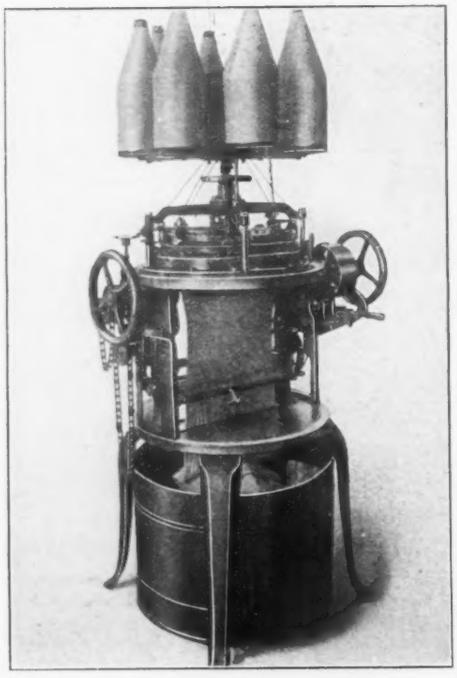
We are now facing the serious problems of reconstruction and the work of replacing this waste will tax our productive capacity to the utmost. There must be no slackers in our peace work if we wish to do our part in peace as well as we did in war. Capital and labor must be kept on a fighting basis for some time if the world intends to make the military victory enduring for future civilization.

"The reconstruction period is pregnant with the seeds of good or evil; what it brings forth will depend upon the care and devotion that the country gives to its problems. It is a period for constructive action, not for destructive criticism."

This is the

Circular Rib KNITTING MACHINE

you ought to get



WE illustrate here our Automatic Rib Underwear Machine, especially adapted to quantity production of perfect quality.

This machine is built by specialists and for consistent and reliable work it is unsurpassed. We call attention to the sectional dial and sectional cam rim. Features appreciated by experienced users of circular knitting machines. The needle cylinder and dial are made of the finest steel forgings and tempered to the ideal hardness eliminating both wear and break. The precision with which the cams (shaped of high grade tool steel) are made and the smoothness of their performance is a revelation. Altogether it is mechanically supreme, and its operation will fulfil the most optimistic expectations.

These machines are made for all classes of knit fabrics. Write us if at all interested.

MANUFACTURED BY

JOHNSON KNITTING MACHINE CO., INC.

St. Johnsville New York

Makers of the

SNYDER MACHINE

Formerly made by H. P. SNYDER MFG. CO., Little Falls, N. Y.

POWER AND ENGINEERING

Power Generation and Transmission — Mill Construction in Theory and Practice

Peace Problems in the Power Plant

Importance of Continuing War Economies —Difficulties in Use of Low Grade Fuels

By *George H. Perkins and Perry Barker**

ONE year ago, a large section of the country was experiencing the most serious fuel shortage in its history. The extreme weather conditions and transportation tie-ups, together with enforced shutdowns of the industrial plants and "heatless" Mondays, are still fresh and painful memories. The many and varied factors contributing to the events of this trying period are so closely related to our participation in the war that they need not be discussed at this time. It is sufficient to say that throughout the spring and early summer, all indications gave promise of a shortage for the present winter fully as serious as that of last year. In addition to the strenuous efforts on the part of the Fuel Administration to supply the increasing coal demands of manufacturing plants, an active campaign of publicity and education was undertaken, urging all fuel users to make all possible economies in their plant operation. The threat of a curtailed supply was held over all who did not sympathize fully with this movement. The slogan of this campaign was "maximum production with minimum waste," which should be equally applicable in peace or war times.

MILLS STOCKED WITH LOW GRADE COAL

As the result of these efforts together with an improvement in transportation conditions, there is now in storage in New England plants more steam coal than ever before at this time of year. Recent estimates indicate that on Dec. 1, 1918, approximately 4,000,000 tons more of soft coal were in storage in New England than on the corresponding date of last year. Of this figure it is safe to say that nearly 1,000,000 tons have been saved by the conservation measures adopted. This saving is difficult to arrive at accurately, but is conservative as it represents only about 4 per cent. of our annual consumption. Practically every plant can be improved 10 per cent. by careful study and operation.

What lessons have been learned from these experiences, and what permanent benefits, if any, will result now that our industries are in the process of readjustment to the conditions and requirements of peace? What are some of the problems arising from the changes now in progress and what measures must be taken for their solution?

The facts most strongly emphasized by the emergency were:

1. That our fuel supply, the most vital factor in our industrial life, is not dependable in crises, even with centralized Government control of its production and distribution.

2. That material fuel economies can be made in most steam plants with the stimulus of shortage of supply, careful study of operating conditions, and the co-operation of good management.

The outstanding questions of the present situation are:

1. How can the recently enforced "fuel thrift" be continued, now that the work of the Fuel Administration is completed.

2. What are the difficulties involved in efficiently utilizing the low grade fuels with which so many of our plants are now overstocked.

FACTORY FUEL COMMITTEES SHOULD BE CONTINUED

In reviewing the conservation measures which have been put into practice during the past year, one of the most helpful for the industrial plants has been the formation of Factory Fuel Committees. These committees, representing all of the various departments of the plant, have done excellent work in bringing together the users and producers of steam and power. The wide gap heretofore existing between these two interests has been successfully bridged, with consequent savings for the plant, as the good work of many such committees will testify. The dyer now has a new conception of the effect of his operations on the boiler plant conditions; and again, the power plant operators can better appreciate the trials of the manufacturing overseer in his efforts to maintain a high production. It is to be hoped that many plants will continue the work of these committees already organized, and not permit their efforts to relax in effecting the highest possible efficiency in the production and use of power and steam.

Many plants, that heretofore have given little thought to the efficient performance of their power plants, have realized during this critical period what marked improvement results from the combination of technical assistance and intelligent operation. Many have learned for the first time the effect of wasteful use of steam in manufacturing processes and have taken steps to measure and check such use.

It is not probable that any of the inspection and betterment work in steam plants undertaken by the Fuel Administration will be continued under Government supervision. It is to be hoped, however, that organizations will be formed by the plant owners throughout the country for mutual benefit along these lines and to perpetuate the good work already begun.

MILLS SHOULD ORGANIZE FOR ECONOMY

As evidence that such organizations are effective, one of the writers investigated the work of a European fuel organization prior to the war, and submits the following brief outline of the activities of this association of steam plant owners. The essential features of this organization are as follows:

1. It is an entirely voluntary association of manufacturers and other boiler users bound together only by a common desire to obtain maximum efficiency in their steam plants.

2. All boilers owned by members are under the systematic and scientific control of a centralized expert technical staff of engineers, devoting their whole time to the interests of the association.

3. All members benefit mutually by the results of all tests and investigations made by the engineers, which are published for the membership in monthly bulletins.

4. The association is self-supporting and draws its funds from small annual dues levied on each member and also on each boiler in their plants. The number of members in 1913 was 500, representing a total of 1744 boilers.

5. The membership which was growing rapidly before the war had been convinced in a most practical manner of the savings effected in fuel consumption by their co-operative efforts.

6. Tests of all new appliances are made by the engineering staff to protect the membership from the varied frauds put on the market for saving coal.

7. Instruction and training of firemen and advice on the purchase of fuel are also included in the service rendered by the engineers to the membership.

The plan of operation of this society in its special field may be compared to the work of the Associated Factory Mutual Insurance Companies in this country, in furnishing centralized engineering service for the fire protection of our mill properties. It would seem highly desirable if some such association of manufacturers and steam users could be formed in this country to carry on similar work, and continue on a more practical basis the activities begun by the conservation division of the Fuel Administration. It is possible that some existing association of manufacturers could be induced to start such a movement, and the time was never more opportune.

DEALING WITH LOW GRADE FUELS

One of the pressing problems of the present winter is not how to meet a shortage, but how best to utilize the low grade coals with which so many of our plants are so heavily stocked. There are many who have believed, with good and sufficient reasons, that New England has served as the dumping ground for much worthless material called coal. It should be superfluous at this time to point out the economic advantages which would result from transporting to New England only such fuel as has the maximum heat value per ton. While advocates of the conservation of our natural resources point out the importance of utilizing these lower grades of coal, it is a most expensive process as many New England mills can testify from recent experience. Plants running with a

TABLE I—WEST VIRGINIA LOW VOLATILE COAL

	Normal.	Average. 1918.	High Ash. 1918.
Moisture	2.50	3.11	2.48
Volatile Matter	17.50	17.91	18.42
Fixed Carbon	74.00	70.83	68.98
Ash	6.00	8.15	10.12
Total	100.00	100.00	100.00
Sulphur	0.65	0.63	0.73
B.t.u. per pound	14410	13886	13656

TABLE II—PENNSYLVANIA LOW VOLATILE COAL

	Normal.	Average. 1918.	High. Ash. 1918.
Moisture	2.50	4.74	6.82
Volatile Matter	18.50	26.09	26.00
Fixed Carbon	71.50	57.19	44.67
Ash	7.50	11.98	22.51
Total	100.00	100.00	100.00
Sulphur	1.40	1.12	1.47
B.t.u. per pound	14125	12554	10047

TABLE III—PENNSYLVANIA STEAM SIZES OF ANTHRACITE

	Normal.	Average. 1918.	High Ash. 1918.
Moisture	4.50	6.92	6.77
Volatile Matter	5.00	5.74	4.40
Fixed Carbon	74.50	67.12	57.50
Ash	16.00	20.22	31.33
Total	100.00	100.00	100.00
Sulphur	0.80	0.52	0.42
B.t.u. per pound	11775	10440	8635

TABLE IV—TYPICAL CHANGES IN CHARACTER OF COAL FOR NEW ENGLAND STEAM PLANTS

	Normal Coal. (1)	"War-time" Fuel Supply. (2)	(3)	(4)
Moisture	2.50	4.28	16.87	0.62
Volatile Matter	18.50	34.12	28.00	19.36
Fixed Carbon	71.50	47.16	44.50	67.90
Ash	7.50	14.44	10.63	12.12
Total	100.00	100.00	100.00	100.00
Sulphur	1.20	1.94	0.46	3.61
B.t.u. per pound	14150	12074	8990	13543
Fusing temperature	2550°F.	....	....	2120°F.

RESULTS OF ANALYSES OF LARGE DELIVERIES OF TYPICAL FUELS

* Consulting and Fuel Engineers, 68 Devonshire street, Boston, Mass.

normal ash and refuse of 6 per cent. to 12 per cent. are in many cases reaching 20 per cent. to 25 per cent., with the attending high combustible losses, excess labor and maintenance. Assuming 5 per cent. as representing the excess ash over normal figures, New England has been supplied with at least 1,250,000 tons of useless material at a price averaging $10 per ton.

In order to give evidence supporting these facts, the figures given in the accompanying tables were taken from a paper prepared by the writers for a recent Boston meeting of the American Society of Mechanical Engineers.

ANALYSES OF LARGE DELIVERIES OF TYPICAL FUELS

Table I shows a comparison between a normal analysis for West Virginia low volatile coal, and the figures obtained during 1918 representing deliveries to a group of New England mills totalling 400 cars. This coal from this district was subject to rigid inspection for navy and bunkering purposes, which accounts for the small decrease in quality.

Table II shows a similar comparison for Pennsylvania low volatile coal, representing deliveries totalling 300 cars. This coal shows much greater increase in non-combustible matter.

Table III shows a similar comparison for deliveries totalling 200 cars of steam sizes of Pennsylvania anthracite. Large quantities of this fuel have been used in New England and burned in varied proportions with soft coal.

Table IV shows the results of analyses of three different "war time" fuels delivered to plants normally using fuel of the quality shown in Column 1. The coal in Column 2 is a high volatile free-burning fuel, which with long firing intervals and low set boilers usually gives a high loss, due to incomplete combustion. The figures in Column 3 illustrate a type of fuel of which much has been delivered to New England plants during the past year. This "out crop" coal is loaded from exposed seams, and has lost part of its combustible volatile matter. Coal of this character will not coke in the furnace, causing uneven distribution of air and large ash pit losses. The Fuel Administration has to date closed about 200 mines responsible for this type of fuel. The coal under Column 4 is of a most troublesome character due to the low fusing temperature of the ash. This coal will cause excessive clinkering, particularly at high rates of combustion.

The principal requisites for successfully burning these classes of fuels are:

1. Knowledge of the characteristics of the fuel and ash.
2. Suitable equipment, properly designed.
3. Intelligent and skillful operation and supervision.

PURCHASING ON SPECIFICATION

One of the results of the difficulties arising from the widespread use of these low grade coals will undoubtedly be an early return to the purchase of fuel on properly drawn specifications. Already many of the most progressive plants are planning to "get what they pay for, instead of paying for what they get" in fuel values.

It has long been a prevailing notion, especially in the textile industry, that the cost of power bears such a small ratio to the total cost of manufacturing that it is negligible. With both fuel and labor at double their former values, this notion is passing into the discard. No equivalent expenditure in the plant has received so little attention as the money spent in power production. The consistently efficient performance of the most progressive plants should serve as a stimulus to those who have looked upon their power as a liability instead of an asset. The combustion of coal is no longer a job for the ignorant untrained man, but rather one worthy of all the effort technical knowledge and skillful operation can bring to bear upon it.

We have learned that our coal supply must be conserved, and it is the business of every steam user to see to it that the lessons of the war shall not be lost in setting the highest standards for America's power plants during the period of reconstruction and peace.

Important Part Played by Motor Trucks

War Gave Motor Truck Prominence and Peace Will Increase Usefulness

By *Samuel Sayward*

IF there is one fact above all others which tells of the important part played by the motor trucks in the textile field, it is the increased number of trucks that have been placed at work for the great textile industries during the past year.

In the fall of 1917, a census of the motor trucks then engaged in work in the textile industries showed less than 500 vehicles. Up to Nov. 1, 1918, more than a thousand additional trucks have entered the textile field; sold to manufacturers of cotton and wool and silk and linen products in spite of the increased prices of the vehicles, and sold because, without the trucks, the record of achievement by the textile industries would have fallen far short of the showing which they have made during the period of the struggle against Germany.

War conditions brought the motor truck into prominence. Peace conditions will increase its usefulness. Through all kinds of weather, working under every condition, trucks have withstood the severest tests. They have fully passed the experimental stage and have become a necessity to textile manufacturers.

EVERY MOTOR TRUCK NEEDED

"Now that the war is over and transportation appears to be assuming a more normal condition, are you going to reduce your fleet of trucks"? was asked.

"Reduce it? No. We are going to increase it just as soon as we can get the trucks," was the answer from more than half of the mill officials. "We can't spare a single truck. We need every one of them," was the unanimous verdict of all.

What has the truck done for the mills that has made them so valuable an asset? What have they done that could not be equally well performed by horse drawn vehicles?

If you should ask those questions of mill officials, you would be surprised at the number of remarkable performances which the motor trucks have made and are making every day. No weather is too severe for them. Best of all, they never get tired, but can be worked day and night in emergencies by double or triple shifts of drivers. They not only can, they have been worked day and night during the unusual conditions brought about by the war.

EQUAL TO EMERGENCIES

At the Arlington Mills in Lawrence, during the coal shortage, the coal piles grew smaller and smaller. There finally came a time when it looked as if the more than six thousand hands employed there would have to be laid off until coal could be secured. The harbors were frozen so that ships could not dock with the precious material. The railroads didn't have it to deliver.

Officials of the Arlington mills found out that some plants had more than they needed for their immediate operations. But it was impossible to get freight cars to move it. There was only one method of hauling the coal far enough and fast enough to keep the wheels of the factory in operation. The motor trucks were put to the test. They carried capacity loads over the roughest roads in the most severe winter weather and the mills didn't lose an hour's time.

The experience of the Arlington Mills was not unique. It was the same experience which all of the big New England mills had during those cold midwinter days. The United States Worsted Co., the Pacific Mills, the Hamilton Mills, the American Woolen Company's mills, and scores upon scores of others, were obliged to call upon the motor trucks for relief during the fuel shortage and there was not a single truck that failed to deliver the goods in the emergency.

To make hauling by motor truck profitable, loads should be provided for the trips in both directions. The mill men looked after that part of the program, even when it came to hauling coal during the emergency, for the trucks carted away from the mills load after load of ashes.

That emergency measure has resulted in many of the mills installing specially constructed trucks for coal and ash carrying as a permanent part of the mill equipment. These are known as dump trucks, the front of the body of the truck being raised by the same motor that operates the truck, tipping the body up so that the load is discharged within a very few minutes. Some of the mills have found that it is more economical to have their coal discharged at some junction point rather than at the mills since the trucks have put into operation carting the coal, besides avoiding many annoying delays.

CHANGED MILL OPERATING CONDITIONS

Many of the larger mills operate trucks regularly between their plants located in different cities, carrying raw material or partially completed materials in one direction and always returning with a load from the other plants. This has resulted in cutting down the amount of raw and partially completed materials which were formerly carried to keep operations going when there was a long delay in transportation.

Through operation of such trips, mills have been enabled to build sections of their plants in parts of communities not immediately adjoining existing plants, thereby taking advantage of many con-

TRUCK AND TRAILER OPERATED BY THE UNITED STATES WORSTED COMPANY

NEST BODIES CUT TIME REQUIRED FOR LOADING AT THE ARLINGTON MILLS

ditions which have proved beneficial in the end, for with a sufficiently large fleet of trucks to handle the work, buildings of the same concern are brought into as close communication as may be desired.

MOTOR USED IN HOISTING

The motor of the truck not only provides the motive power for propelling the truck but it is also being utilized to provide motive power for raising and lowering the body of the truck, hoisting heavy loads at storehouses from the truck into the storehouses or vice versa and for various other needs. The engine of a truck is, first of all, an engine and where a corporation plans to purchase trucks for a special purpose in which they can utilize the engine when the truck is not in motion, they should get in touch with the engineers of some motor truck concern and explain their desires. The motor truck makers will plan out the method by which the work will be accomplished.

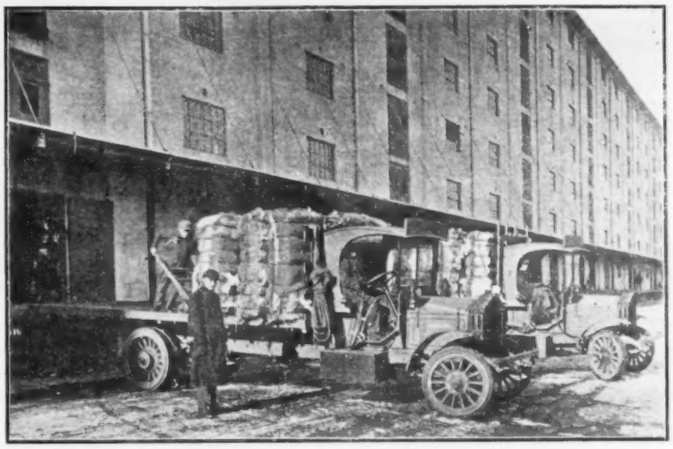
There are mill officials who have failed to buy motor trucks because they have not decided which make of truck is most suited to their needs. The trucks have passed the experimental stage. Traffic officials of mills can be found any day who will tell why the make of truck which they use is better adapted for their work than any other make of truck, but it would be difficult to find any group of half a dozen traffic officials who would agree that one particular make of truck was the best in every particular.

There are trucks operated by gasoline, trucks operated by electricity and trucks operated by steam. Each has its work to perform and there are reasons why all of them are used. But no two officials having charge of the trucking will use the same kind of a truck for similar work.

LIGHT AND HEAVY TRUCKS

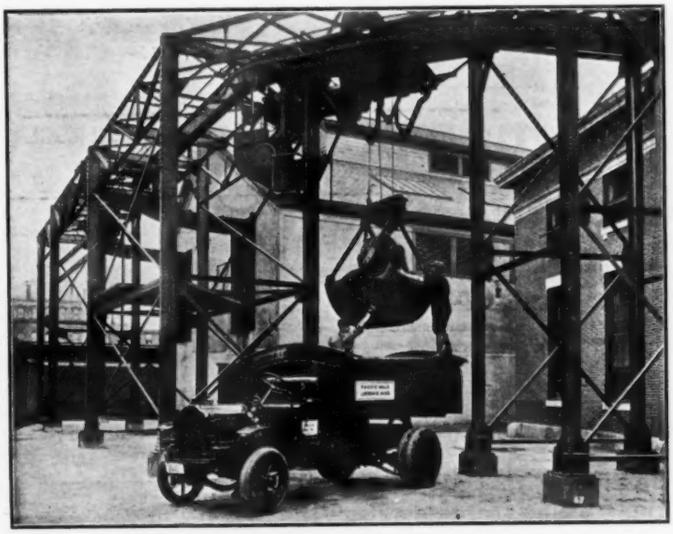
Some shippers claim that a light truck for a long trip is preferable, because the trip may be made more quickly with less wear and tear on the car. Other shippers declare that a heavy truck which will carry a larger load is preferable for long trips because it will make up in capacity what it lacks in speed and will require no extra help to run it. The same arguments are used when short hauls are discussed. In the case of electric trucks, they can be used to advantage on short hauls and where their batteries may be recharged at the plant without considerable expense. For long hauls they are less practicable.

The life of the motor truck depends largely upon the care which it receives, the weight of the load as compared with the advertised capacity of the truck, and the character of the roads over which the hauling is done. A poor road will do more to a loaded truck than many miles of additional travel.



TRUCK USED BY THE BELLEVILLE WAREHOUSE, WHICH FINDS NO DIFFICULTY IN NEGOTIATING THE STEEP HILLS OF NEW BEDFORD IN ALL KINDS OF WEATHER

During the period of the war, road building has been sadly neglected but with normal conditions again returning, America should see the greatest period of road construction start next spring of any year in its history. Millions of dollars are ready to be spent in construction of roads in every section of the country. New roads will mean hundreds of added miles to the life of every motor vehicle. Added mileage will mean increased economy in operation and upkeep of trucks and increased economy will mean increased use of trucks.



DUMP TRUCK USED AT PACIFIC MILLS FOR HAULING COAL AND ASHES

LONG DISTANCE HAULING

Long distance hauling by motor trucks was an experiment a year ago. Today it is a common occurrence. Light trucks and heavy trucks and trucks with trailers are being used in long and short hauls. Transportation conditions during the past 18 months have made it necessary for the mill men to require more or less long distance trips of their motor trucks and the work has been done efficiently and economically, particularly so when compared with the value of the trips so made to the successful completion of some contract or delivery.

EXPERIENCE OF ARLINGTON MILLS

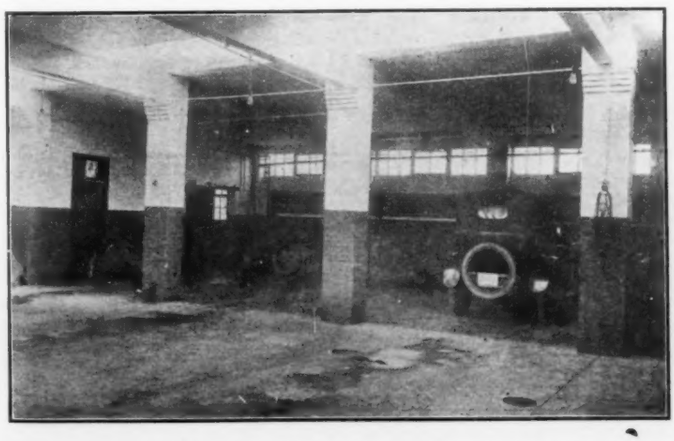
At the Arlington Mills, Lawrence, Mass., a fleet of five-ton White trucks are in constant operation. These trucks are operated with a fair degree of regularity between different mills of the same company. One dump-truck carries coal to the boiler house and carries away the ashes. This truck supplanted the last of the horses, for it had been considered that horses were better fitted to do that work than trucks. When the dump truck was installed it was discovered that the idea about the horses was a mistaken one—the dump truck did the work better, more quickly and with less expense.

C. C. Chadwick, traffic manager of the Arlington Mills, says that the trucks can do anything that horses ever did and a whole lot of things that horses couldn't do. A chauffeur and one helper comprise the operating force of each truck, the helper gradually learning to be a chauffeur, helping operate the car in emergencies and especially on long trips. There is always need for a good chauffeur, particularly in emergencies when trucks are operated more than a single working day at a stretch.

One shipment for the Arlington Mills took just three months to be delivered. At that rate, according to Mr. Chadwick, a huge stock would sometimes be required to tide the mill over such delays. But the motor trucks made the delivery in four days. In other words, had the mill been required to stock up on account of possible delays, it would have to carry at least twenty times the amount of stock in that particular line than was required through using the trucks in the emergency.

The cost of operation of the Arlington Mills trucks is declared to be slightly higher than the freight charges, but considerably less than the express rates.

In the handling of freight at the mill, the trucks play an important part. Some days there will be but half a dozen or so freight cars backed into the yard. Other days there will be as many as 70. All must be handled quickly. In the old days not only all of the mills' horses, but those of outside contractors, had to be secured during the rush days. Now



NEW GARAGE OF THE UNITED WORSTED COMPANY. A NIGHT MAN LOOKS AFTER THE TRUCKS WHEN THEY ARE BROUGHT IN AFTER DAY'S WORK

FLEET OF SIX TRUCKS AND ONE TRAILER OPERATED BY THE UNITED STATES WORSTED COMPANY. DUMP TRUCK USED FOR COAL, AT LEFT OF PICTURE

Ashton Building, Grand Rapids, Mich. General Contractors: Campbell & McNabb, Grand Rapids, Mich. Roofers: F. J. Sokup & Co., Grand Rapids, Mich.

Why the Underwriters approve Barrett Specification Roofs—

The photo above shows the roof of the Ashton Building in Grand Rapids after a recent fire.

The building carried a Barrett Specification type of roof which served as an air-proof fire-blanket—*and served well!*

A report of the fire states that the firemen played two heavy streams on this roof for two hours while the fierce fire raged in the upper stories.

Yet the roof did not burn and only succumbed *where the destruction of the roof boards and beams brought about a complete collapse of the support.*

In fire that twisted steel and melted copper, the roofing only smoked, softened and cooked; but it did not blaze or furnish fuel to the flames!

Notice how strips of it hung on the rafters where flames could attack it edgewise, and yet it was not consumed!

No wonder the Underwriters Laboratories put Barrett Specification Roofs in "Class A" and accord them the base rate of fire insurance!

20-Year Guaranty

We now guarantee Barrett Specification Roofs to last for twenty years without cost for maintenance. The guaranty is a Surety Bond issued by one of the largest surety companies in America, the United States Fidelity and Guaranty Company of Baltimore. It is offered on all roofs of fifty squares and over in all cities in the United States and Canada of 25,000 population and more, *and in smaller places also where our Inspection Service is available.*

A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.

New York Chicago Philadelphia
Cleveland Cincinnati Pittsburgh
Birmingham Kansas City Minneapolis

The Barrett Company

Boston St. Louis
Detroit New Orleans
Nashville Salt Lake City Seattle

Peoria Atlanta Duluth Milwaukee Bangor Washington Johnstown Lebanon Youngstown Toledo
Columbus Richmond Latrobe Bethlehem Elizabeth Buffalo Baltimore

THE BARRETT CO., Limited: Montreal Toronto Winnipeg Vancouver St. John, N.B. Halifax, N. S. Sydney, N. S.

the company's fleet of trucks easily handles the business without outside help.

But there isn't an idle moment for a truck. When they are not unloading or loading freight they are doing something else. They make regular trips between Lawrence, Mass.; Franklin, Mass.; New Bedford, Mass.; Woonsocket, R. I.; Worcester, Saxonville, Lowell, North Chelmsford, West Chelmsford, Boston and Billerica, Mass. Occasionally they make even longer runs.

The trucks haul coal to the Arlington Mill from the South Lawrence yard. In and around the plant, the company operates one G. V. electric truck, charging the batteries at their own power station and keeping a spare set of batteries always on hand. Trucks are always loaded both on the outgoing and return trips, cutting operating costs to a minimum.

Many trips were made between New York and the various mills of the company during the transportation tie-ups of last winter, and the company is ready to repeat its performances this winter if necessary.

MADE COST FIRST YEAR

In New Bedford, Mass., the Beacon Mills are operating two five-ton Pierce-Arrow trucks, carrying goods from the mills in the northerly end of the city to and from the boats and freight sheds, and occasionally making longer trips to deliver special orders.

"We more than made the cost of each truck the first year of their operation," said Charles O. Dexter, agent of the mills. "It is far cheaper than moving the goods by either freight or express. Owing to the bulky character of the goods we handle, we employ a chauffeur and two helpers for each truck."

The American Woolen Co. is a firm believer in the efficiency and economy of motor truck operation and has largely increased its fleet of trucks during the past year. Their trucks not only operate between freight depots and mills in the cities where they have plants, but they keep materials evenly distributed among the mills.

UNITED STATES WORSTED CO.

The United States Worsted Co. was one of the earliest of the textile industries to purchase motor trucks. They have operated them from the early experimental days up to the present time with ever-increasing confidence in them and in their ability to perform all of the work required. Oftentimes they have worked double shifts of men and have loaded the trucks far beyond the advertised capacities, but in every case the performance of the truck has justified the faith placed in it.

This company also uses trailers to advantage, and when both are loaded the total capacity of the load is close to ten tons. E. S. Wells, of the company, in speaking of the costs of operation of the United States Worsted Co.'s trucks, says: "Last year we were able to reduce the amount of stock required by us and carried on hand to meet all emergencies by at least $350,000. The interest on that sum amounts to $21,000 per year.

"Goods were transferred as needed from one plant to another without passing out of the hands of the compaany at all. Long delays in moving freight were at once overcome. All goods moved between the dye works and the weaving plant are handled by the trucks.

"We have six trucks. Two are Peerless five-ton trucks, two are G. M. C. five-ton trucks, one is a G. M. C. dump truck for hauling coal and ashes, which, by the way, kept us from shutting down from lack of coal last winter, and one is a one-ton G. M. C.

"Besides handling all of the goods required to be moved from the different plants in Lawrence, thereby reducing materially the amount of stock which we have to have on hand, the trucks make daily trips between Lawrence and the mills at Lowell and the Silesia Worsted Mills at North Chelmsford. Sometimes the trucks haul a fully loaded five-ton Troy trailer attached on these trips.

"Trips are made almost daily between Lawrence and the Iroquois Mills at North Saugus, Mass. Twice weekly trips are made between Lawrence and the Saxony Worsted Mills at Newton, Mass. Twice weekly trips are made from Lawrence to the Strathmore Worsted Mills at Concord Junction, Mass. We have made a trip almost weekly from Lawrence to Wyoming, R. I., and we make frequent trips to Boston.

WORK LAID OUT IN ADVANCE

"The work for the trucks is usually laid out a day in advance. The superintendent makes up his schedule for the next day about four o'clock each afternoon. He makes this schedule up so that the trucks will operate fully loaded in both directions.

PATENTED RACK FRAME OVER CAB TO INCREASE THE CAPACITY

"Hauling of goods between the plants of the company is done at a far smaller rate than could be done by freight. We carry loaded and empty bobbins on one of our regular trips. The freight rate for the loaded bobbins is 13 cents for 100 pounds and nine cents for the empty bobbins, a total of 22 cents per 100 pounds for the round trip. If we take, for example, a truck hauling four tons each way and making two trips a day, the truck will haul 16 tons at a cost of from $19.25 to $25.50 per day, or at a rate of from six to eight cents per hundred pounds. This cuts the freight rate nearly two-thirds.

But this example is made from a low estimate of the actual work done by the trucks. As a matter of fact, on that particular haul, the showing is even better than those figures indicate.

"Losses to goods in transport are unknown when being moved by trucks. When carried by freight they frequently occur and while they are eventually made good, the loss through delay in receiving material is often greater than the actual loss through damage to the goods.

"In using the trailer, we have found that it is better to load the trailer with the heavy merchandise and the truck with the lighter goods, for the truck will negotiate the steep grades better with a lighter load than with a full load and lighter trailer. When loaded with wool, the truck and trailer will carry a little less than four and a half tons. The capacity of a freight car is five tons of wool."

CARE OF TRUCKS

The United States Worsted Co. has recently completed its own garage. Previously, the chauffeurs had been required to care for their own cars after each day's work, looking them over each night and getting them ready for the next day's work. With the completion of the garage, however, the company has placed an expert machinist in charge. He goes over each truck when it is brought in at night, makes any needed repairs, and if any unusual repairs are to be made, he calls upon some of the machinists of the mill to assist him. Thus the trucks do an extra hour's work each day, for when the chauffeur took care of the truck it usually required about an hour's time to go over them after the day's work.

When a truck is overhauled, which is done at least once a year, the chauffeur and helper go with the truck to assist in the work, thereby acquiring additional knowledge of the truck and its mechanism which enables them to make any minor repairs while on the road.

Cushion tires are used on the heavy trucks and pneumatics on the one-ton truck, while enclosed cabs have been provided for the drivers so that they may operate the cars in all kinds of weather with the greatest comfort to themselves. The helpers are given every opportunity to learn to operate the trucks, thereby qualifying as operators when the regular driver is absent.

MILLION POUNDS MOVED MONTHLY

Moving a million pounds of raw material a month is part of the work which has been done by the motor trucks of one large textile manufacturing concern during the past year. Under ordinary conditions this would have been moved by freight, taking much more time in transit.

The cost of transporting this great quantity of raw material by motor trucks was less than the cost of moving it by freight, plus the haulage from warehouse to freight shed and from freight shed to the mills. It was far less expensive than moving it by express would have been and yet the company received better than express service in the time required for handling it. In handling this great amount of raw material ways have been discovered in which the charges for handling it can be reduced so that another year the operating cost will be still further lowered.

The average distance of the trips made by the trucks in handling this material was 30 miles, and the company has had as many as 22 trucks loaded and on the road at one time.

While the handling of the raw material was the most important item which the trucks were called upon to perform, it represents only a small part of the actual work required of them. After unloading raw materials the trucks were loaded with materials in process, completed materials, or other articles for the return trip, for the company operates its trucks loaded in both directions to cut operating costs. With plants located in all sections, the company can always find materials to be transported either to other plants or to shipping points, and when such transportation is provided at lower-than-freight rates it is decidedly to the company's advantage to utilize its trucks in moving materials ready for transfer or shipment.

There is no duplication in handling shipments when motor trucks are used and the materials in transit are still under the company's control, thereby doing away with possibilities of loss in transit.

"In the past year we handled more material over the road than ever before," said an official of the company. "This was done, not so much because of the increase in freight rates and the smaller cost of handling it by motor trucks, but because so much business was handled at mill centers that railroad freight congestion became a serious matter with us and we had to turn to the motor trucks as the only means of relief.

"If the attitude of the railroads is to maintain present rates or still further increase freight rates, then the use of motor trucks for handling business such as we have done the past year, is bound to increase.

REDUCES NUMBER OF HANDLINGS

"To load and unload a motor truck requires a considerable proportion of the time the truck is in actual use. The same would be true of a horse-drawn truck. Once loaded, it takes but little more time to have that truck carry the goods to destination and there unload it than would be required to unload it and reload it at freight terminals. When you do away with this duplication of handling at freight terminals, the time saved represents a considerable part of the time required to make an average trip to the actual delivery point. While your chauffeur and helper are unloading a truck the return load is being assembled and when you make your return trip with your truck loaded you have again saved a double handling of your goods; saving in a single round trip two loadings and two unloadings, or four handlings of the goods shipped. You have no freight charges to pay, no posting of bills of lading, no delay in receipt of goods, no freight congestions, no tracing of delayed freight shipments. You simplify and expedite the handling of goods and save money in the bargain."

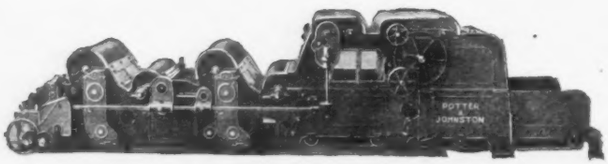
The company operates trucks of from one-half ton to six tons capacity among its more than 50 mills. There is no iron-clad rule regarding the loads which these trucks shall carry or of the particular work which each one does. Trucks of one ton, two and a half tons and three tons capacities are the favorite sizes, although this does not prevent the trucks of other capacities from receiving their full share of the work.

No schedule of trips is operated, the trucks being used where they are needed. The trucks do all kinds of work for the company, hauling between mills, from mills to shipping points, making destination deliveries, hauling raw, partly manufactured and finished materials to and from freight terminals, hauling coal, removing ashes, carrying supplies and machinery and doing many other kinds of work. They help to bring the various mills of the company into closer contact with each other and assist in increasing the efficiency of the scattered plants into one big corporation.

TRADE MARK REGISTERED

NON-FLUID OIL

UNITED STATES PATENT OFFICE



For Lubricating Picking Machines

IN these machines the Beater and Fan bearings are fast heavy bearings that consume a great deal of power unless they are kept perfectly lubricated.

Use NON-FLUID OIL here and you avoid excessive use of power and undue wear and tear on the bearings. NON-FLUID OIL will not run out and leave bearings dry like oil.

NON-FLUID OIL lubricates when the journal revolves and does not need to be melted by frictional heat as does common grease. Much power is consumed in this way when melted grease runs out and wastes away like oil.

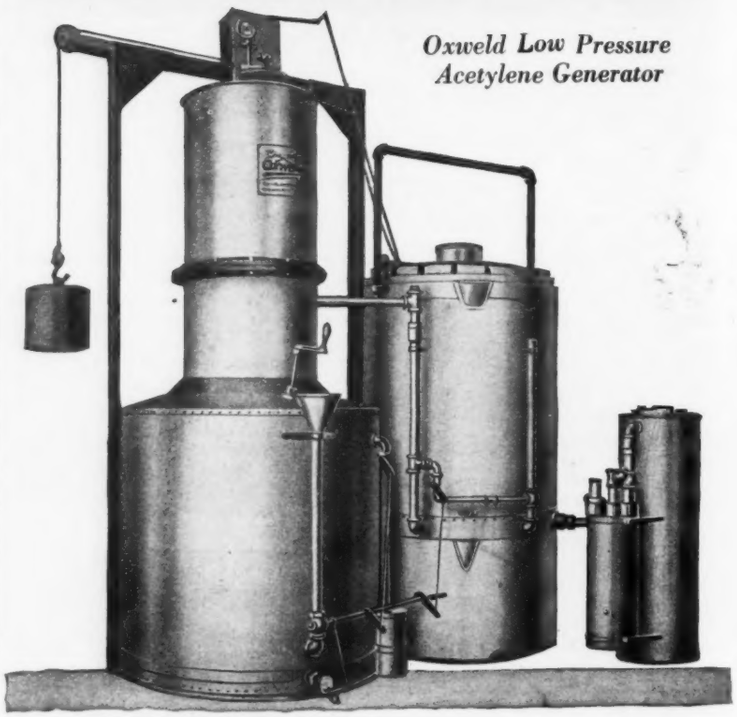
Use NON-FLUID OIL on all your textile machinery and you will find that it will cut down spoilage from spattering dripping oil and will yield better lubrication at less cost per month.

Send for the latest edition of "Lubrication of Textile Machinery"; it's free for the asking.

NEW YORK AND NEW JERSEY LUBRICANT COMPANY

165 Broadway New York City

Oxweld



Oxweld Low Pressure Acetylene Generator

BREAKDOWN! The dividend robber of the textile industry—in the olden days. But now Oxweld equipment quickly, permanently, and cheaply welds practically every metal thing that breaks about the mill. Only a few minutes application of the Oxweld Blowpipe, and the job is done—the break is welded—the part goes back into service as before—no time lost, no shut-down in the old sense of the word, no failure in production, no expense for a new part.

Oxweld Injector Type Welding and Cutting Blowpipes

are the most efficient and economical, regardless of the source of your acetylene gas supply. Where for portability or other reasons compressed acetylene is used from cylinders, Oxweld Injector Type Blowpipes utilize far more of the contents of the cylinders than will any other type of blowpipe.

Oxweld Low Pressure Acetylene Generators

possess advantages that are possible only in a generator of the low pressure type—namely, simple and automatic action, operation at a pressure of less than 1 lb. per square inch, and delivery of a constant flow of acetylene to the blowpipes at unvarying pressure.

Write for Special Booklet on Textile Mill Application

Oxweld Acetylene Company

NEWARK, N. J. CHICAGO LOS ANGELES

World's Largest Maker of Equipment for Oxwelding and Cutting Metals

126

Mill Lunch Rooms for Employes

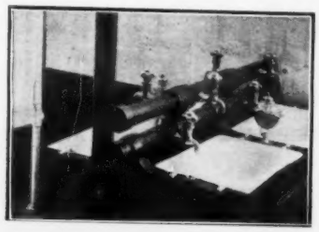
Promote Health and Therefore Efficiency —Clean Lavatories Improve Grade of Help

By *A. W. Anderson*

WELFARE work had its inception in the tentative efforts of a limited number of progressive employers who refused to be bound by the age-long attitude on industrial relations. They were business men, possessing vision and insight into the physiology and psychology of human nature. They were investigators in the realm of the unknown in the human equation.

In general with other employers they were conscious of the fact that the efficiency of their employes was variable. They had also learned that efficiency was not altogether a matter of the will of the employe and that, therefore, besides the various incentives used there were many physical factors to be considered.

With the expansion of manufacturing enterprises and the development of industrial insurance, the examination of employes by physicians made it evident



INDIVIDUAL WASH BASINS. SIDNEY BLUMENTHAL & CO., INC., SHELTON, CONN.

that a large number of persons in industrial employment were undernourished, and otherwise physically neglected.

Provisions of food and clothing, and the general care of the body had hitherto been considered entirely a function of the home, and in no way a part of the interests of the employer. But these progressive men had come to see that the physical condition of the men and women who performed the labor of production was as legitimate a matter of their concern as was the physical condition of their plants. They therefore turned their attention to the environment, habits and nutrition of their employes.

ANALOGY IN TRAINING ARMY

If a precedent had been needed, it might have been found in the courses pursued by governments in fitting their citizens for military service. The military authorities realized that if they were to depend upon individual initiative in exercise and hygiene, or upon food of inferior quality furnished on a hit-or-miss plan, whatever their efforts in other directions the effectiveness of their soldiers would be uncertain.

Careful investigation disclosed many valuable facts, and furnished illuminative explanations of much in the employe problem that had previously been puzzling and exasperating. For example, there had been in many plants a noticeable falling off in production in the afternoons. The percentage of mistakes also was much larger in the hours immediately succeeding the noon hour than in any other period. The inquiries instituted revealed the causes of these delinquencies in a totally unexpected quarter.

PATRONIZE "QUICK-AND-DIRTIES"

Among other data, that referring to nutrition yielded the following significant information. Many employes lived at such a distance from the plants that the noon hour did not allow of sufficient time in the ingestion of the mid-day meal, which is in the homes of most industrial operatives the principal meal of the day. As a consequence, the workers bolted their food and rushed back to the mills. Still others brought cold lunches in pails and boxes and ate inside the workroom walls.

A large number, however, went to restaurants, good, bad and indifferent: but mostly bad, where they consumed food that was poor in nutriment, and indigestibly prepared.

All these causes were contributory to indigestion, with its attendant lowering of vitality and efficiency. To remedy this evil, restaurants were established on the mill grounds where well-cooked nourishing food could be obtained at low cost.

Those who preferred to bring lunches from home were given the same privileges in the dining room as those who bought the restaurant food, and many of the former supplemented their lunches with food or hot drinks bought at the lunch counter.

Today the value of such institutions is universally recognized. Corporations with their large buying powers are able to effect a direct saving to the employes in addition to the conveniences afforded, and this without loss to the company in the operation of the restaurants.

Some mills arrange their restaurant management so that workers who find that they have taken insufficient food at breakfast, and as a result are unable to keep up the working pace, may procure a light lunch during the forenoon. This may seem unwise to some employers, but has worked out well in actual practice and under proper guidance.

The mere bringing together of employes in a clean, well-managed restaurant, under such supervision as will encourage the best and suppress the un-

WASH ROOM WITH ENAMELED TILE WALLS AND TERAZZO FLOORS AT HOLEPROOF HOSIERY COMPANY'S NEW MILL; HOT AND COLD WATER MIXING VALVES ON SUPPLY LINES; WASHING IS DONE IN RUNNING WATER ONLY

desirable in social atmosphere, is sure to make for mass and individual improvement. Add to this the well ordered and tasteful serving of food that has been carefully selected and cooked, and the fruit will be seen in greater interest, loyalty and efficiency. Among other reasons for these results is the fact that these meals are far superior to those served in the homes of many workers, and in fact the only meals enjoyed under pleasant conditions and surroundings by some.

The following are prime considerations in the installation of a mill restaurant. The counter and tables should be of non-absorbent material, and plain in design to facilitate cleaning. The design and coloring of the room should produce as cheerful an effect as possible. The seating capacity should be large enough to avoid too close quarters at tables. Nothing is more annoying at meals than insufficient room. The four plate tables are usually more satisfactory than long ones. The small party table makes possible the pleasant privacy and conversation of congenial characters, and segregates unpleasant personalities.

There are many ways in which the thoughtful employer may add to the appearance and charm of the dining room, and all the effort expended in this direction will find response in the improved attitude and patronage of the workers.

A sample menu from one plant is as follows:

Rice Tomato Soup 3c.
Wafers
1c. for four
Plate dinner 14c.
Includes Potatoes and one Slice Bread
Boneless Roast Beef with Yorkshire Pudding or Escalloped Salmon or Macaroni with Parmesian Cheese and a Strip of Bacon
Shredded Leaf Lettuce Mayonaisse 4c.
Sliced Beets 3c. Peas 3c.
Assorted Homemade Pies 4c.
Apple, Mince, Pumpkin, Apricot
Cheese 1c. Tapioca Pudding 4c.
Layer Cake with Grape Jelly Filling 4c.
Tarts 4c.

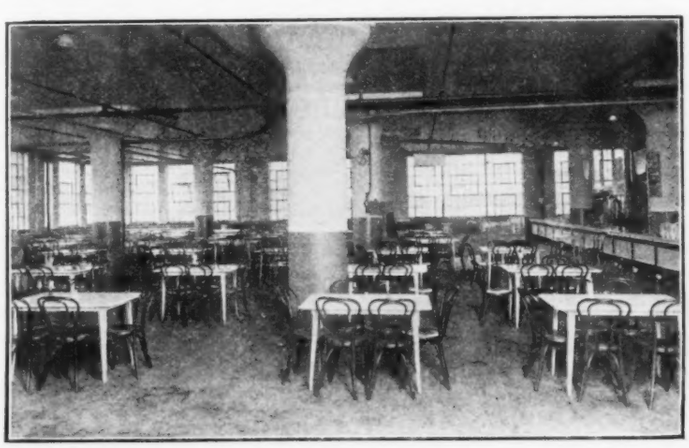
The cost of an average meal is 25 cents.

A large mill in the Middle West says concerning its restaurant: "It is certain that it has resulted in better health, greater personal resourcefulness, social equipment, earning power and happiness of our employes. It is not philanthropy or charity, but good business."

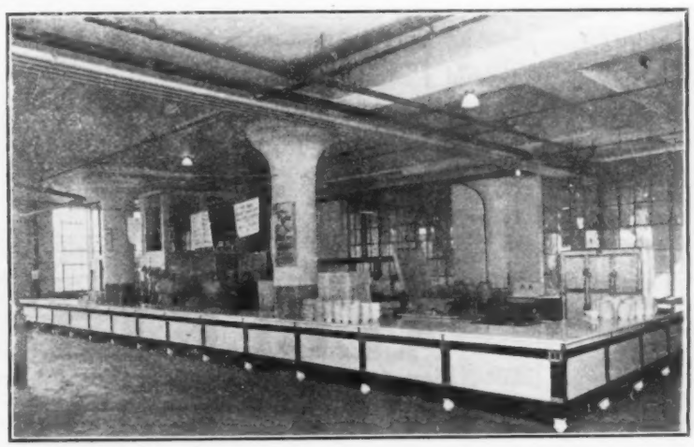
MILL LAVATORY EQUIPMENT

Another fact that is becoming more evident to manufacturers is that the man who possesses enough self-respect to be careful of his personal appearance, to keep clean, is likely to take pride in his work. Many persons whose general characteristics made them particularly desirable as operatives would not enter the mills because of the impressions they received from the unclean appearance of mill workers coming directly to the street from work. Such persons naturally sought employment in cleaner lines of work, where a better personal appearance might be maintained.

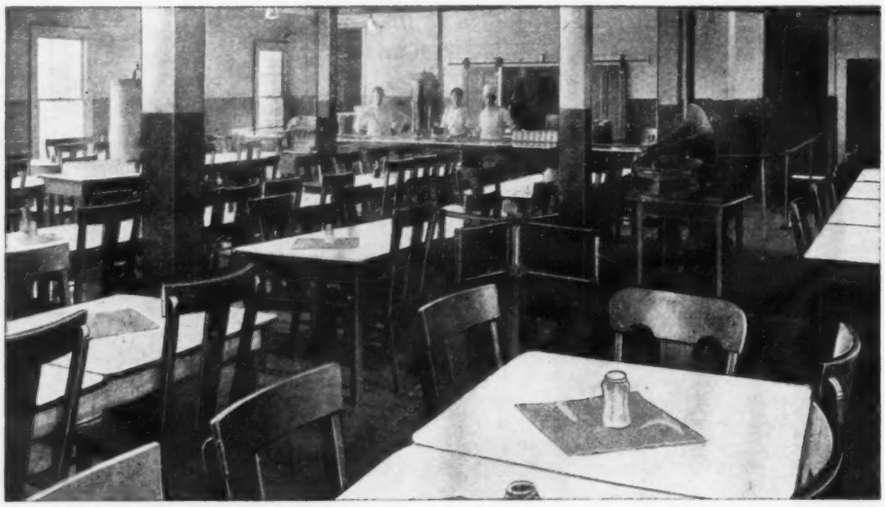
As is well known, mental attitude towards one's work and the place in



EMPLOYES' LUNCH ROOM IN GERA MILLS, PASSAIC, N. J.



COUNTER IN THE GERA MILLS' LUNCH ROOM



QUALITY VALUE SERVICE PIX

Cafeterias Installed Complete!

THE WAR is over and already business has started the important task of reconstruction. Better working conditions for the employee is one of the first and most important steps. Just how satisfied George and John will be to settle down to peace time activities and peace time wages depends in a large degree upon the factories themselves. Satisfaction and good health are the strongest incentives back of big production, and these are the two incentives created by a properly equipped factory lunch room. It is natural to suppose that you, whose mind is taken up with the affairs of industry, know little or nothing about a lunch room. How can you expect to solve the many problems connected with the equipping and installing of an efficient cafeteria?

Our experts will take the floor plans of the space you intend devoting to this proposition and lay out a scientific cafeteria. All the necessary equipment, most of which is made in our own factories, is installed under our supervision, and when everything is in perfect running order, we turn back to you a cafeteria designed right and installed for efficiency.

Write for information—our representative will call on request.

ALBERT PICK & COMPANY

Manufacturers, Importers and Jobbers of Equipment, Furnishings and Supplies

208-220 W. Randolph Street

CHICAGO, ILLINOIS

which one works may spell success or failure. It means much to an intelligent man or woman to be able to go to his or her work and return home well dressed and clean. This is made possible by systems of lockers for street clothes, and lavatories where all may cleanse themselves from the inevitable accretions incident to most forms of industrial employment, and make themselves presentable for public appearance.

Heretofore, the privilege of "washing up" had been rather doubtfully assented to by a few employers. With the new era in welfare work the attitude of employers has changed from a mere granting of restricted privileges, to the installation of the most modern facilities and the encouragement of their use. Thus the delightful lavatory and restaurant privileges become associated in the minds of employes with the mill and the work, which without them would be monotonous and many times unbearable.

The employer of labor can exercise little arbitrary control in these matters, but by judicious educational methods and the supplying at low cost of the corollary equipment and material most remarkable results have been achieved. Aside from the merely physical benefits arising from welfare work, the mental profit to the workers and the indirect financial profit to the employers is out of all proportion to the expense involved Type and cost of equipment of course varies with the size of plant. There is available a large variety of lavatory furnishings, and manufacturers of such equipment can give valuable advice on selections.

In closing this article the writer cannot refrain from suggesting that all employers should endeavor to procure a copy of the booklet entitled "Restaurant Facilities for Ship Yard Workers," published by the Industrial Service Section of the Emergency Fleet Corporation, Washington, D. C. It contains much valuable information and food for thought.

Progress in Mill Lighting Practice

Higher Intensities—State and Federal Regulations—Developments in Accessories

By *H. H. Magdsick**

LIGHTING contributed in important degree to the productive capacity of the country's industries and to their protection during the past year. The exigencies of war-time serve, as only an emergency can, to define clearly the essentials of efficient production, and under such compulsion good practice in various phases of mill operation crystallizes far more rapidly than under normal conditions.

In lighting, intensive research and development during the years immediately preceding the war had provided

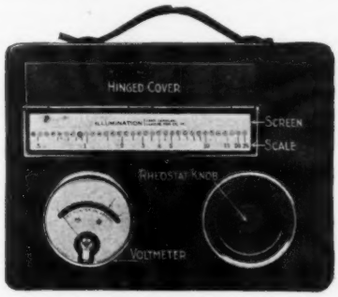


FIG. 1. FOOT-CANDLE METER WITH WHICH ILLUMINATION INTENSITIES ARE READ DIRECTLY

efficient sources and means of control by which illumination of a daylight standard in quality and quantity became practicable. Some manufacturers had given this question study and had installed such facilities in their plants; but it remained for the demands of war-time production to accelerate greatly the consideration of adequate lighting and secure its more general adoption.

HIGHER INTENSITIES ADOPTED

The past year therefore marks a notable advance in the standard of industrial lighting intensities. The adequacy of the intensity for a given operation was long judged with little reference to sustaining vision without discomfort or strain day after day, or to the stimulation experienced by the operatives under an abundance of light. Taking these factors into account and judging the results by the unit cost of product turned out, progressive mill managements are now using 10 to 15-foot candles in locations where only recently a range of 2 to 5-foot candles was thought sufficient. The more economical range of 10 to 15-foot candles corresponds with average intensities obtained in mill interiors under what is considered adequate and satisfactory day-lighting.

Wm. A. Durgin has made public in "Transactions of Illuminating Engineering Society," No. 8, 1918, the results of a lighting investigation in two Chicago plants where accurate production records were kept under the lower and higher intensities. In a shop producing soft metal bearings, with operations ranging from rough to fine, production under an illumination of 12-foot candles was increased from 8 to 27 per cent. for the several operations over that secured under an intensity of 4 foot candles. The character of the lighting equipment was the same in both instances; the intensity alone was changed. In another plant where the most modern incandescent equipment replaced lamps on drop cords giving a low average intensity, the increased production ranged from 30 to 100 per cent. Mr. Durgin's general conclusion from studies conducted in a number of plants is that the average effect will prove at least a 15 per cent. increase in production at an increased cost equal to not more than 5 per cent. of the payroll.

The small compact foot-candle meter, Fig. 1, with which even the layman may read the illumination intensity directly an any surface, has contributed more than any other development to a quantitative understanding of illumination among operating officials and a concrete idea of conditions existing in plants under natural and artificial lighting. With such concrete knowledge the management of a mill is able to proceed intelligently in providing lighting facilities.

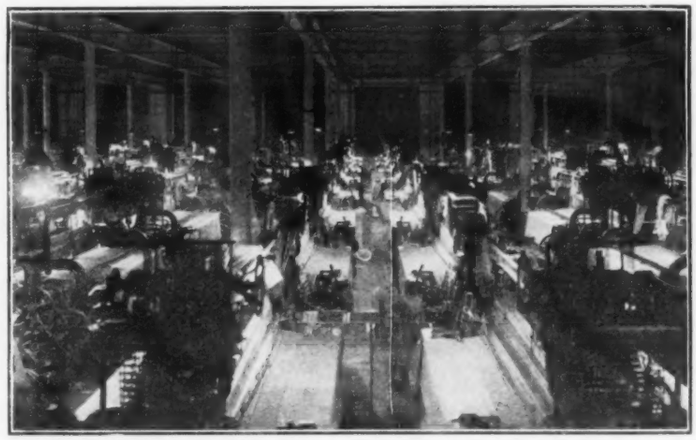


FIG. 3. WEAVE ROOM ILLUMINATED WITH LAMPS OF MODERATE SIZE INSTALLED IN BOWL TYPE OF REFLECTOR. THE GENERAL SYSTEM WITH LARGER UNITS MOUNTED CLOSER TO CEILING AND ILLUMINATING THE HIGHER VERTICAL AND WALL SURFACES MORE BRIGHTLY IS NOW CONSIDERED PREFERABLE

STATE AND FEDERAL REGULATIONS

The regulation of industrial lighting by Federal and State authorities has been extended during the year. The Wisconsin Industrial Commission has issued a new set of regulations specifying the intensity for locations and operations of the several grades, controlling glare by specifying the maximum permissible brightness of the light sources when exposed to view near the general line of vision, and limiting the use of local lighting of operations alone.

The Department of Labor in New York issued a code whose provisions became effective on July 1. It is more specific than the requirements issued by other states in that a table is included assigning various industrial operations to the several grades of intensity.

A committee of the Ohio Industrial Commission prepared a proposed code on which several public hearings were held during the past year. In connection with this code there was also given a table of the standards of intensity to be established by the Industrial Commission for the various industrial operations and to form the basis of the inspector's interpretation of the intensity rule.

The United States Bureau of Standards adopted lighting regulations, based upon the code prepared by the Illuminating Engineering Society, for Government plants and for incorporation in the National Safety Code. The committee on labor of the Advisory Commission of the Council of National Defense issued a code along similar lines.

In connection with these several Federal and State codes, explanatory and educational matter of value is published as an appendix. The intensity requirements are based solely upon considerations of accident prevention and conservation of vision. They do not take into account a factor of the greatest importance to the manufacturer, viz., economy of production, which demands a considerably higher range of intensity. In addition to the very moderate mandatory intensity regulations of the codes, a higher range of "ordinary practice" is published either with the rules or in an appendix. From the standpoint of the more recent tendencies in mill lighting these "ordinary practice" values must be regarded as conservative. Practice in the more progressive plants is now well above those values.

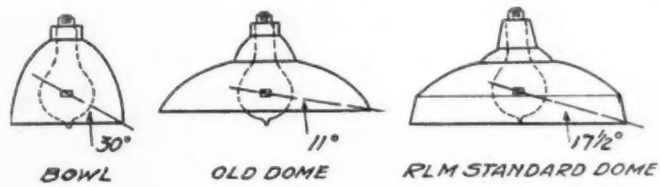


FIG. 2. NEW R L M STANDARD DOME REFLECTOR DESIGNED TO COMBINE ADVANTAGES OF BOTH BOWL AND OLD DOME

DEVELOPMENTS IN ACCESSORIES

Among developments in lamp accessories* the RLM standard dome reflector is of great interest and importance, inasmuch as this type of reflector is now most often employed in mill lighting, and the establishment of the standard of quality and performance is the result of a co-operative effort of the illuminating engineers of the principal steel reflector manufacturers and the makers of Mazda lamps.

From Fig. 2 it is seen that the RLM Standard dome is intermediate between the former dome and bowl types and was designed to combine the advantages of both. The dome reflector has the advantage of greater light output, larger area of light-giving surface, and better illumination of the higher vertical surfaces and walls. The bowl, on the other hand, shields the eye better from

* Engineering Department, National Lamp Works.

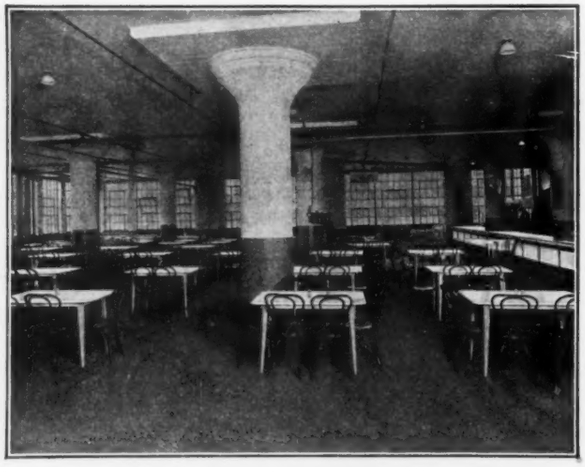
* A comprehensive discussion of the properties and performance of these accessories is included in the article, "Reflecting and Diffusing Light," by Ward Harrison, appearing in the issues of Nov. 2, 16, 23 and 30, 1918.

FRENCH GOVERNMENT OPERATES RESTAURANTS AND WELFARE ROOMS

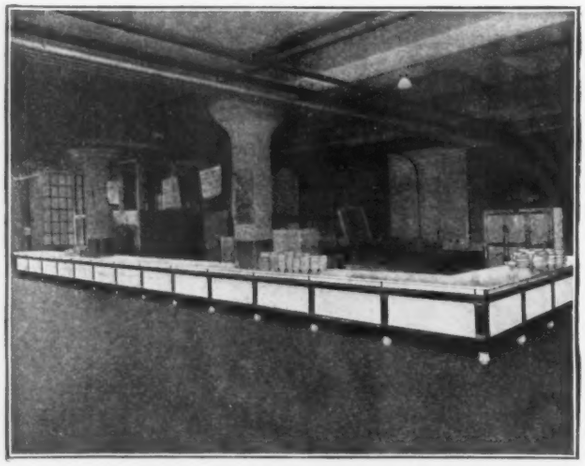
TO LOWER LABORER'S COST OF LIVING

and has arranged to open immediately 10 popular-price Welfare Rooms in the city of Paris, each containing 1000 seats, where meals can be obtained at a reasonable price.

Your plans for the reconstruction period will be kneaded in with the loyalty co-operation and efficiency of your employees. A clean comfortable lunch room in which the tables are spotless and devoid of all stale odors, and the chairs are really restful, where a meal can be thoroughly enjoyed, is a decidedly strong inducement for the retention of desirable help, and is absolutely essential to the welfare of your entire organization.



Part of an installation of SANI ONYX TOP—SANI METAL BASE TABLES, STOOLS, CHAIRS and SERVICE COUNTERS in the Gera Mills at Passaic, N. J., which included 74 No. 50-113A 30 x 48 Sani Onyx top tables with genuine WHITE PORCELAIN ENAMEL BASES.



Part of an installation of SANI ONYX TOP—SANI METAL BASE TABLES, STOOLS, CHAIRS, and SERVICE COUNTERS in the Gera Mills at Passaic, N. J., showing 79 lineal feet of our No. 452 Sani Onyx Lunchroom or Cafeteria Counter.

"PASSAIC, N. J.,
Oct. 18, 1918.

"CHICAGO HDW. FDY. CO.,
168 Church St., N. Y. C.

GENTLEMEN:—

"We received your letter of Oct. 17 and also the two photographs of our lunch room, and in answer will say it gives us pleasure to state that we are well pleased with the installation of our sanitary lunch room equipment.

"The entire outfit is giving satisfaction in every respect, especially as regards the sanitary features of the equipment—Sani Onyx tops and Sani Metal base which we regard as a great advantage.

Yours truly,
(Signed) GERA MILLS,
OTTO BRUCKNER, Treas."

Sani Onyx, in widths not to exceed 42" and lengths not to exceed 4 ft., can be supplied for use on special sorting, packing and wrapping tables, this white top making it very easy to distinguish colors and defects in manufactured products.

Our catalogue L-10-12 shows the complete line of modern factory, welfare, lunch room and shop equipment from which you will be able to choose equipment for a temporary as well as a permanent installation, and will be forwarded immediately upon your request.

CHICAGO HARDWARE FOUNDRY COMPANY

Sani ONYX — RAISED RIM TABLE TOP adds strength and durability, prevents chipping and dropping. Acts as retaining edge

Main Office and Plant ∴ NORTH CHICAGO, ILL.

Sani METAL — WHITE PORCELAIN ENAMEL ON IRON is clean as a freshly washed china dish.

SALESROOMS:

CHICAGO, 546 W. Wash. Blvd.
ST. LOUIS, Title Guaranty Bldg.
MINNEAPOLIS, 803 First Nat. Soo Line Bldg.
NEW ORLEANS, La.
MONTREAL, 35 St. Nicholas St.
CLEVELAND, 504 Swetland Bldg.
NEW YORK, 168 Church St.
PHILADELPHIA, 304 Lafayette Bldg.
WINNIPEG, Galt Bldg.
SAN FRANCISCO, 204 Rialto Bldg.
HAVANA, Cuba, Obrapia 32.
WASHINGTON, D. C., 204 Evans Bldg.

the glare of the direct view of the lamp filament; from this standpoint the older dome reflectors were frequently not satisfactory when used with Mazda C lamps. In the new RLM dome reflector the direct light from the filament is cut off at an intermediate angle, as shown. This design is found to give satisfactory protection from direct glare and at the same time retains the other advantages of the dome type. With this reflector available, the deeper bowl type is used to advantage only where units are hung relatively low for somewhat localized lighting. For general illumination the RLM dome is to be preferred in practically all cases.

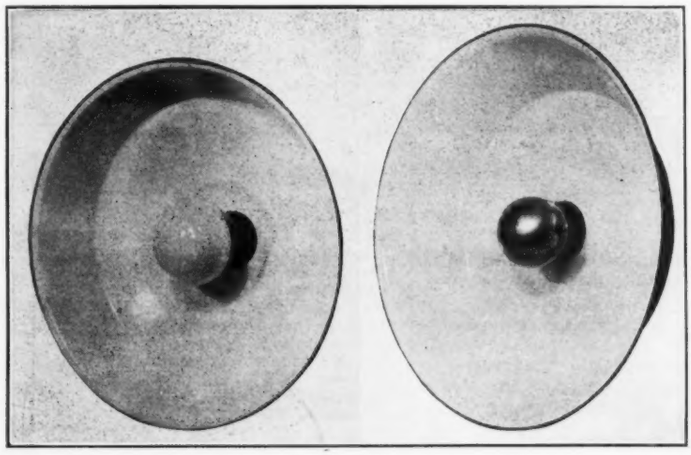


FIG. 4. LAMP WITH OPAL GLASS CAP AND R L M STANDARD DOME REFLECTOR AT LEFT; METAL-CAP DIFFUSER UNIT AT RIGHT

Fig. 3 shows a good installation of a type which until recently has been representative practice. Lamps of moderate size are installed in the bowl type of reflector and located with reference to the looms so as to give a somewhat higher intensity on the principal working surfaces. To-day the tendency is toward the use of larger lamps suspeded higher, in equipments such as the RLM standard dome, glass diffusing units, etc., and with a substantially symmetrical location so as to provide a high intensity all over the room. This system permits one to take advantage of the greater efficiency of the higher voltage lamps; it reduces the cost of wiring and gives a room a more orderly appearance. Probably its greatest advantage results from the increased illumination on the higher vertical surfaces and walls, which gives a sense of brightness, cheerfulness and general stimulation.

FIG. 5. GENERAL ILLUMINATION FROM LARGE LAMPS IN GLASS DIFFUSING UNITS OF LOW BRIGHTNESS. A COMMENDABLE INSTALLATION

DIFFUSING UNITS

For most mill conditions the RLM dome reflector with frosted lamp gives sufficient diffusion and protection from glare; when the units are mounted 20 ft, or more above the floor, clear lamps are found satisfactory. Where the visual requirements are severe, where only soft shadows are desired, and glare both from the units themselves and reflected images in polished surfaces is to be made a minimum, further modification has been found desirable.

During the past year installations of the equipments shown in Fig. 4 have been made with marked success to meet such conditions. A dense opal glass cap attached to the bowl of the lamp reduces the brightness to a low value and secures the redirection of most of the light from the surface of the RLM dome, with which it is employed. The maximum softness of shadow and reduction of brightness is secured with the metal-cap diffuser, in which the silvered cap fits closely to the bowl of the lamp, and all the light comes from the large upper diffusing surface.

Glass diffusing units of the "semi-enclosing" type have likewise grown in popularity and have produced very desirable results. The general impression of brightness in a room lighted with such equipment is particularly marked. An installation of general illumination from high-wattage units of this type is shown in Fig. 5.

Direct lighting from these various sources of low brilliancy seems to be considered as better adapted to most mill conditions than semi- or totally indirect methods. Nevertheless the latter produce the maximum diffusion of light and may frequently be applied with advantage.

The lighting of yards and passageways, boundaries and approaches has been the chief aid of the armed guard in protecting the mill from destruction by enemy agents. Incidentally the increased illumination out-of-doors has been of such utility in reducing accident and facilitating the movement of men and materials that a new standard of yard and exterior lighting will prevail generally in the future.

CUTS COAL HANDLING

Electric Industrial Truck Reduces Carpet Manufacturer's Costs

A GREAT deal could be written about the success of electric industrial trucks in cutting transferring costs for work in and about textile mills. An instance of a saving of 50 per cent. in coal handling cost by C. H. Masland & Son, Philadelphia carpet manufacturers, has just come to hand.

Coal is unloaded by gravity from railroad cars into bins fitted with radial gates. This arrangement is illustrated in Fig. 1.

To enable the truck to get on top of the storage pile, which is shown in Fig. 2, a runway was built.

Analysis of data on several recent installations shows the daily operating cost of a Lakewood storage battery truck, which is the type used in the instance, to be $3.35. This does not include wages of operator. It does include mechanical maintenance charges, interest and depreciation on machine, lubricants, storage battery maintenance and charging cost based on two cents per kilowatt hour.

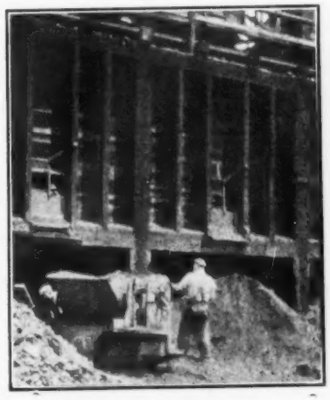


FIG. 1. TRUCK LOADED BY GRAVITY IN 8 SECONDS

Organization of Employment Department

(*Continued from page* 136)

This task was solved in the following manner: The reverse side of the employment record is divided into co-ordinate squares and the efficiency of the worker charted every week besides keeping a record of weekly earnings. The time card, Fig. 6, is arranged so that all factors of earnings are separated and the efficiency determined with the assistance of a production table.

On this table, based on logarithmic principles, the productive labor and the total hours constitute the co-ordinates, and the point of interception automatically shows the efficiency of the worker. The construction of this series of tables has involved considerable expense but it has proved worth while, and being of universal character it is adaptable to any branch of the textile industry.

The efficiency obtained in this manner, is charted on the employment record and all cards showing a decrease of efficiency are investigated by the department. This method of control has proved very effective and simple.

These employment cards are not filed in alphabetical order but according to groups of efficiency. A glance at the file will tell the manager what portion of the force is in the high and what in the low efficiency group. The departmental foremen are encouraged to inspect their respective files frequently, and keep in constant touch with the weaker workers, assisting them by an increased personal supervision or more intensive training.

RECORDS OF LABOR TURNOVER

Excessive labor turnover can be eliminated by only one method; and this is the constant analysis of all causes of the turnover. The employment department is provided with analysis sheets, Fig. 7, and a record is made of each worker leaving or entering the organization. This is recapitulated for the general manager in a weekly record.

THE PROBLEM OF DINING AND RECREATION FACILITIES

Industrial dining rooms are no longer novelties. There is no question in the mind of the writer that a mill should offer its employes a suitable location for luncheon facilities and opportunities for noon-time recreation. Prior to the construction of the dining and recreation room of the Black Cat Textiles Co., the writer made extensive investigations of similar institutions and the results prompted him to make a radical departure from the conventional dining room construction. The majority of such institutions were fashioned after the popular dining rooms, with their cold and unimpressive furnishings, or were altogether too elaborate for the purpose.

The only location available for the purpose was used previously as a knitting room with its intervening ugly columns, low ceilings and a lack of natural light. In the middle of the ceiling a long coil of ventilator served as the only means of heating, and could not be dispensed with. After careful consideration it was decided to transform the posts into columns with longitudinal panels and to cover the ventilation coils with a lattice work. That this idea was a happy one is shown by the illustration at Fig. 8.

The next problem was the proper selection of color combinations. It was decided to devise a color scheme, not only pleasing and of restful effect, but at the same time practical and sanitary. The brick walls have been left in their original state and painted with a washable oil paint of a soft buff shade, the

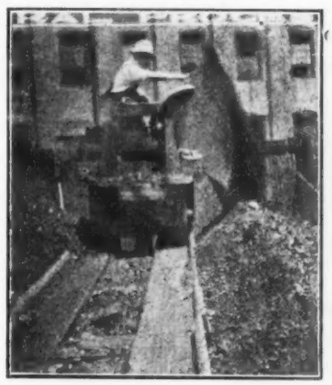


FIG. 2. TRUCK DISCHARGES TO STORAGE PILE

"Grease will wash off but a man that's got a yellow streak is branded forever."

"The Great White Way to Profit"

Increase Your Output

By Installing VitroMarble Sorting Tables

THE installation of Vitro-Marble sorting tables will increase your output by enabling your sorters and packers to detect flaws and off-colors more quickly, to move the goods faster, and to work with less fatigue. The snow-white, light reflecting surface will aid in lighting the room and thus reduce your light bills. The polished surface is easy to keep clean and sanitary.

What is VITRO-MARBLE?

Vitro-Marble is a snow-white composition made by melting crushed onyx at a temperature of 2600 degrees Fahrenheit. It has a surface like glass, is absolutely imperious to liquids, will not stain, and can be kept as clean as a china plate with a damp cloth. Can be obtained from us in table tops only, or complete tables. Special orders made up to specifications in our big plant and delivered promptly.

Write for Catalog

MARIETTA MANUFACTURING CO.

3972 E. 16th St. INDIANAPOLIS, IND.

Lunch Room Equipment

Vitro-Marble Lunch Room Equipment has been installed in hundreds of industrial plants, including such well known textile mills as the following:

FORSTMANN & HUFFMAN
Passaic, N. J.

PARAMOUNT KNITTING CO.
Waupon, Wis.

GERA MILLS
Passaic, N. J.

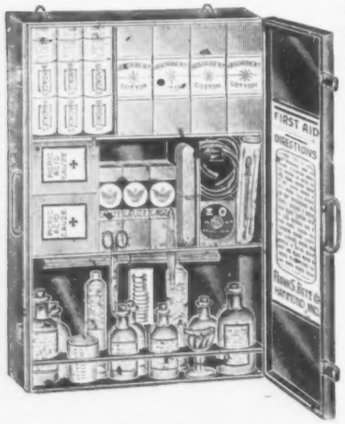
SIGMUND EISNER,
Red Bank, N. J.

INTERNATIONAL TAILORING CO.
Chicago, Ill.

FIRST AID EQUIPMENT FOR THE MODERN FACTORY

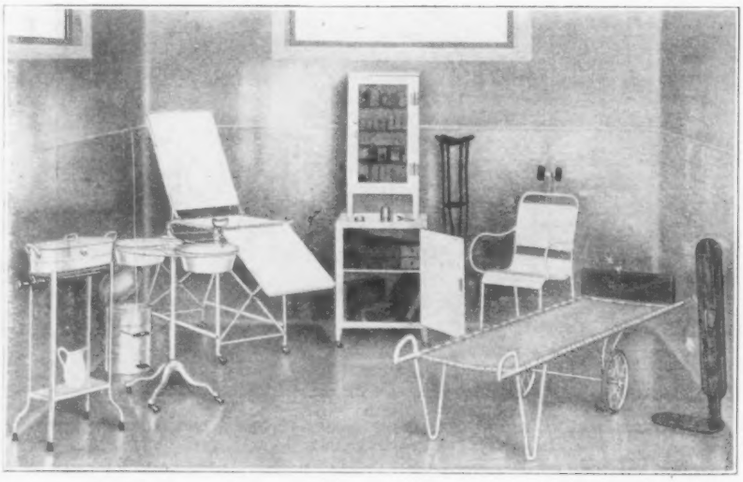
PROTECT YOUR EMPLOYEES! Many valuable employees have been kept on the job by immediate attention to injuries while at work.

The small investment required to equip your *First Aid Room* will be fully covered the first year by the time saved in getting your employees back to work in the shortest possible time after injury, also on claims which many times result on account of complications caused by delay in securing medical attention.



The Betz First Aid and Accident Cabinet

This cabinet contains all the necessary articles, including bandages and medicine for First Aid Treatment of minor injuries. No factory, no matter how small, should be without one of these cabinets, which we are quoting complete with contents for $8.50.



The above outfit is one of many different combinations which we have supplied to manufacturing institutions all over the country. This outfit can be installed in a space 10′ x 10′, and will enable your attending physician or nurse to handle minor injury cases without removing the patient to the hospital, and also to administer immediate treatment in cases which if delayed until the patient could be removed, would result seriously. **Write us for complete information on Industrial First Aid and Hospital Equipment.**

FRANK S. BETZ CO., Hammond, Ind.

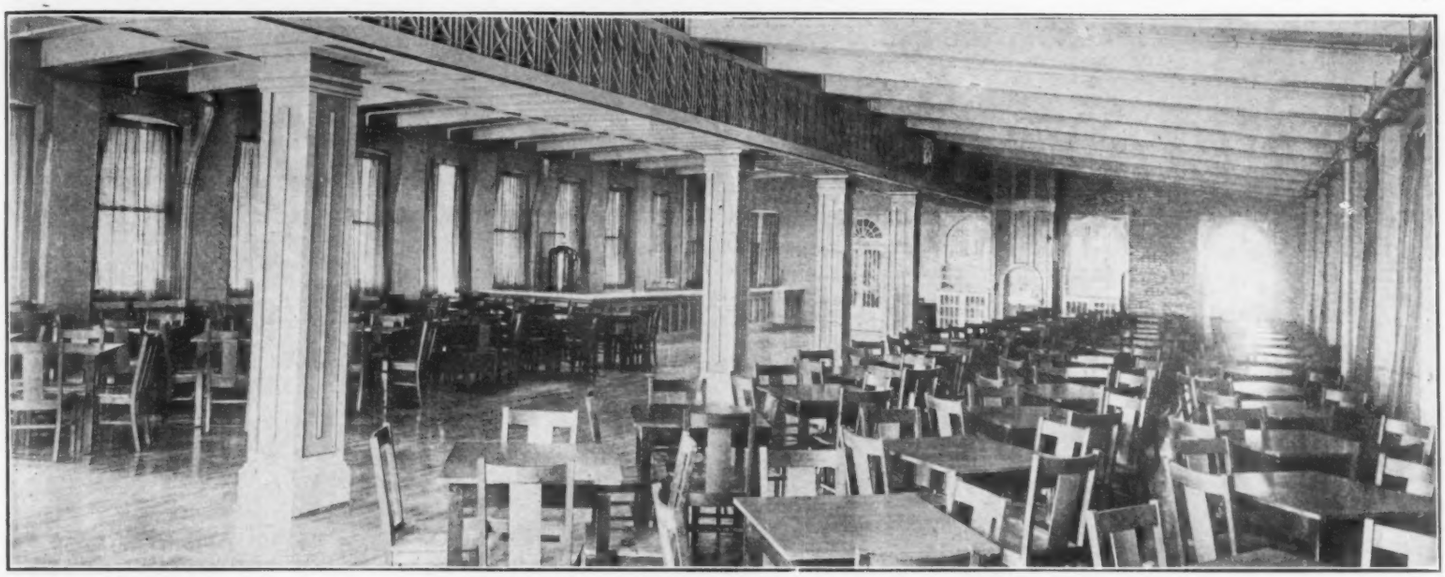


FIG. 8. DINING AND RECREATION ROOM AT THE BLACK CAT TEXTILES CO., KENOSHA, WISCONSIN

ceiling has been painted a very light gray, while the beams are a darker shade. To give the room a higher stud effect, the intervening wall spaces between the windows were painted a gray color.

Previously to the reconstruction, the room had four entrances, two of which were transferred to cupboards of a very effective French panelling style, while the doors were made into double wing French doors. An entrance was provided from the street to be used in the evenings. The tables and the chairs selected were of the simplest design, painted in black and brown combination. To insure a soft soothing light effect, blue curtains were selected for the windows.

The end of the hall was raised a few inches and serves as the rest room and as a stage for social gatherings. This section is provided with substantial reed furniture, also with a piano and victrola. The room is decorated with two unusually artistic mural paintings.

ARRANGEMENT OF THE DINING ROOM

Fig. 9 represents the arrangement of the dining room. It was found that the seating capacity of the room is almost doubled by placing the tables corner wise instead of lengthwise. The open space between the columns is reserved for dancing, besides providing an aisle to the recreation section.

QUICK SERVICE CAFETERIA SYSTEM

It is well known that cafeteria system is objectionable to the worker. It necessitates the "snake line," is slow, and takes away a great deal of the precious noon-time rest of the workers, to which they all object. The happy solution of this problem is due to Mr. John Brine, the general superintendent of this company. There is practically no waiting on the part of the diners. One diner from each table takes care of the service for the four, preventing the crowding around the counter and increasing the service efficiency four times. This system is as simple as it is ingenious and is worthy of a trial in every industrial dining room.

This institution has now been running for about six months, proving that an industrial dining room can be made attractive without elaborateness; practical and clean without cold furnishings, and serve for more than one purpose. The workers have taken to the new institution without coaxing, the result of "the home atmosphere." It serves as a social center, open at evenings as a club room, and for entertainments.

The coming year will probably bring a more intensive application of the above described principles of employment control throughout the textile industry. The management of the Black Cat Textiles Company should be given due credit for being among the pioneers who realized that the consideration of the human element and the intimate care of the worker is the most important factor of a modern industrial undertaking.

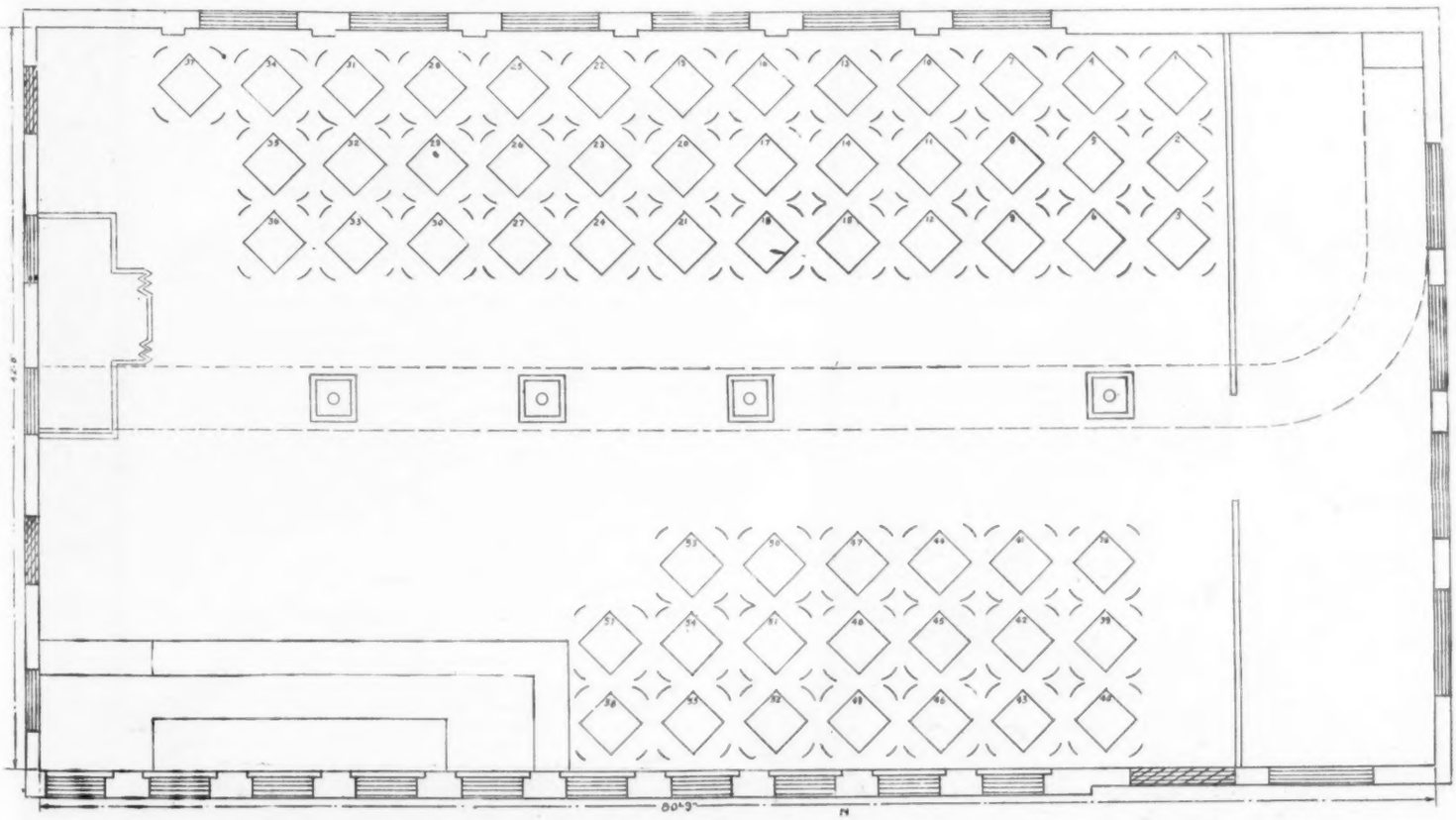


FIG. 9. FLOOR PLAN OF DINING AND RECREATION ROOM AT BLACK CAT TEXTILES CO.; THE ARRANGEMENT OF THE TABLES GIVES DOUBLE CAPACITY

Every Link An Eye

A MILLION EYES

Watch every foot of property and stop every opening.

Every link of Cyclone Chain Link Fabric is an EYE doing watchman's duty—ever vigilant, dependable, economical, permanent.

Every entrance and every exit is absolutely controlled. Persons not wanted inside are barred outside by

Cyclone

Property Protection Fencing

A positive barrier against intrusion by all undesirables. "THEY SHALL NOT PASS" is equally true when applied to CYCLONE Property Protection Fence, as when it became the famous Verdun slogan of Victory.

Chain Link Woven Steel Fabric, heavily galvanized; heavy tubular steel posts set in concrete; pressed steel post tops carry three or five barb wires firmly locked.

Our engineers will advise with you and suggest a system of protection to meet your particular requirements.

Illustrated catalog showing many Cyclone Fence installations sent free on request.

Phone, wire or write main offices, Waukegan, Ill., or branch offices nearest you.

CYCLONE FENCE COMPANY

FACTORIES: Waukegan, Ill., Cleveland, O.

BRANCHES: Chicago, Philadelphia, New York City, Washington, Oakland, Calif., Portland, Ore., San Francisco

Report of Mill Construction for 1918

New Projects, Enlargements and Improvements

Statistical Review Compiled from Textile World Journal Records

WHILE the textile industry, like everything else, has felt the heavy hand of war, and building restrictions have prevented the usual construction work on new mills, additions, etc., at the same time, the good effects of the "ill wind" are seen in the large number of new companies which have started up as a direct result of Government war needs. This is particularly true of knitting mills. TEXTILE WORLD JOURNAL, in reviewing the situation for the year, finds a record of 125 new knitting mills started in 1918, a total which has been equaled only once in the last ten years, and that in 1914 when 142 mills were established. In 1917 only 97 knitting mills were started up. This increase is explained, of course, by the heavy demand for underwear and hosiery for Army and Navy use. All possible aid has been accorded to manufacturers who will establish plants for the production of these articles, and priorities have been given on all necessary machinery. While comparatively few of the 125 new companies have been able to erect their own plants, they have been granted permits for the necessary alterations and additions to convert old buildings to their use.

Strangely enough, the number of woolen mills for 1918 is exactly the same as the number of new mills last year, namely 24. In fact this same number has occurred three times before in the past ten years, as can be seen by the tabulation of new mills in the various branches of the industry for the past ten years given herewith.

Comparison of New Mill Construction of Last Ten Years

	1918.	1917.	1916.	1915.	1914.	1913.	1912.	1911.	1910.	1909
Cotton	29	52	51	24	26	27	37	32	67	80
Wool	24	24	23	19	21	24	24	20	31	47
Knitting	120	97	113	111	110	142	122	92	113	105
Silk	49	86	60	25	51	54	46	35	34	37
Miscellaneous	27	38	33	40	37	30	36	26	29	20
	254	297	280	219	245	277	265	205	274	289

Cotton, silk and miscellaneous mills have fallen somewhat short of previous records, but not to an alarming degree. The total number of new mills for the year is given as 254, compared with 297 last year, with 280 in 1916 before we entered the war, and with the average of 257 for the past ten years. While the number of new cotton mills is little more than half the number for last year or the year before, yet it is larger than for any of the three preceding years. Comparison of the 49 new silk mills with the 30 new cotton mills is scarcely fair, since many of the silk concerns operate only five or ten looms in small rented space in Paterson, some of them doing commission work only, while the cotton mills are for the most part important units with a complete equipment of accessory machinery and a mill building of their own. Miscellaneous new plants, including dyeing, bleaching and finishing works, show a decrease this year, and are less than at any time since 1911. Perhaps this is due to the fact that many of the mills operating on Government work are installing finishing plants of their own.

COTTON INDUSTRY

It would probably not be incorrect to say that practically every cotton mill started during the year had some direct bearing on Government work. Of the 29 new plants 9 are for the production of hosiery yarns, 6 are for duck, 5 for shoe lacings, tapes, etc., 2 for cotton belting and one for absorbent cotton. As far as we can learn only six of these mills have erected their own plant, although two or three others have built additions to the buildings they have taken over. Among the former mills may be mentioned the Alexander Mfg. Co. of Forest City, N. C., which will manufacture hosiery yarns; the Marlboro Cotton Mills of Hamlet, N. C. (branch of McColl, S. C.), manufacturers of duck; Steele Cotton Mill Co., Lenoir, N. C., yarns; the Grier Cotton Mills, Inc., North Wilkesboro, N. C., carded cotton yarns, and the Adams Cotton Mills, Macon, Ga., which has erected a plant for the production of duck. The Russell Cotton Mills of Lavonia, Ga., ducks; the American Braiding Co., Holyoke, Mass.; the Thornton Cotton Duck Mills, Thornton, R. I., and the Ninigret Mills Co., Westerly, R. I., ducks, are some of the larger companies leasing or buying plants. The Towar Textile Mills Corporation was formed to manufacture ducks and purchased a plant in Toledo, O., to which it erected extensive additions.

WOOLEN MILLS

It is hard to classify the new woolen mills, but the majority of them seem to be for the production of shoddy, blankets or yarn. Only 8 of the mills are for men's wear, and two of these may not be, strictly speaking, "new" mills, since they are but new branches of old companies. Perhaps the most important of any of the new woolen mills, from the viewpoint of mill construction, is the new branch of the Andrews Mill Co. at North Smithfield. Six large new buildings were constructed, including the main mill, storehouse, power plant, boiler house, etc., to be operated in connection with the Philadelphia plant, which produces men's wear. The Umkommas Woolen Mills, Inc., has started up at Passaic, N. J., operating 100 looms. Twenty looms are operated by the Rocky Brook (Conn.) Mills, Inc., which erected five new buildings. Eight of the new mills will spin worsted and merino yarns, and six mills are to manufacture shoddy, waste, etc. Two of the 24 mills reported are located in Canada. La Cie de Lainage de Rimouski, at Rimouski, Que., will have 7 looms for flannels, blankets, etc., and Woolstox, Ltd., of Toronto, is erecting a building for the manufacture of shoddy. The Yadkin Woolen Mills., Inc., Patterson, N. C.; the Bradford Mills, Passaic, N. J.; the Waterford (N. Y.) Yarn Co., the Conneaut (O.) Woolen Mills Co., and the Bay State Spinning Co., Boston, Mass., may be mentioned among the new yarn mills.

NEW KNITTING MILLS

Of the 125 knitting mills 84 are for the production of hosiery, 10 for sweaters, 9 for underwear and the rest for miscellaneous knit goods, including gloves, novelties, knitted tubing, mop cloth, etc. The hosiery mills show a large percentage of mills for making silk hosiery, and cannot therefore attribute their start to war demands. North Carolina and Pennsylvania are the sites of the majority of the new hosiery plants, and it is in these states that most of the construction work has been done. About 25 mills were specially constructed for knitting concerns, a large number of these being in North and South Carolina. With so large a number to choose from it is hard to judge the most important projects, but possibly the following may be cited in such a category: Kincaid Knitting Mills, Griffin, Ga., hosiery; Switchbound Hosiery Mills, Hagerstown, Md., a new branch of the Reading, Pa., company; High Point (N. C.) Underwear Co.; Kernersville (N. C.) Knitting Co.; Elizabeth James Mills, Marion, N. C., half hose; Zebulon Hosiery Mills No. 2, Raleigh, N. C.; Siler City (N. C.) Hosiery Mill Co.; Ragan Knitting Co., Thomasville, N. C, children's hosiery; Chickashaw Hosiery Mills, Oklahoma City, Okla.; Herbert Hosiery Mills, Conshohocken, Pa.; Hawley (Pa.) Knitting Mills, Inc., sweaters; Bauerly & Ern, hosiery, Philadelphia, Pa.; Tailor Made Hosiery Co., Philadelphia; Sunlight Hosiery Mills, Blackville, S. C.; G. H. Tilton & Son, new branch hosiery mill at Columbia, S. C.; Magnet Knitting Mills, new branch hosiery mill at Coal Creek, Tenn.; new branch of Richmond Hosiery Mills at Marysville, Tenn.; Ellis Hosiery Co., Chatham, Va.; Carolina Cotton & Woolen Mills, new underwear plant at Roanoke, Va.

Thirty-five of the 49 new silk mills are in New Jersey, most of them in Paterson. The number, though large, represents a loomage of little more than 500 for all of the New Jersey mills. The mills in other States are larger. For instance, the Albany (Ala.) Silk Mills has erected a plant and started with 400 spindles and 60 looms; the Post Silk Co., Lehighton, Pa., has 44 looms; Jouvaud & Lavigne have a new branch at Liverpool which has a capacity of 12,000 pounds of tram silk daily; Marietta (Pa.) Silk Mfg. Co. has 40 looms; The Liberty Silk Throwing Co., Nanticook, Pa., has 25,000 silk spindles; there are 150 looms at the Rhode Island Silk Co., Central Falls, R. I.; 75 looms at the Milano Silk Weaving Co., Pawtucket, R. I., and 15,000 spindles in the new mill erected at Parkersburg, W. Va., by Kahn & Feldman, of New York.

MISCELLANEOUS MILLS

There were 27 new miscellaneous mills started this year. Eleven of these are connected with the woolen industry, manufacturing waste and shoddy or carbonizing wool. Ten are dyeing and finishing plants and the rest are for warping, winding, etc. They represent little in the way of construction work since only 4 plants of any size were erected for special textile use. These are the new custom picking and carding plant of Herbert Taylor & Co., Grafton, Mass.; Beltramo Piece Dyeing & Finishing Co., Paterson, N. J.; the American Processing Co., Mount Holly, N. C.; and the Wisconsin Textile By-Products Co., Sheboygan, Wis.; the Cohoes (N. Y.) Fibre Re-Claiming Corp., and the Colonie (N. Y.) Fibre Co. are two up-State mills which will do carbonizing and garnetting of wool stocks; the Ajax Wool Processing Co. of Philadelphia, is a large concern, and has erected a 60x100 foot addition, to be used as a warehouse in connection with the building which it secured for its mill. The Arcadia (R. I.) Print Works completed the mill it started last year and began operations. In Rhode Island there are three other large dyeing and finishing concerns, namely, the Centredale (R. I.) Dye Works, the Green Dyeing Co. of Pawtucket and the Service Dyeing & Winding Co. of Providence.

The detailed report of new mills, important changes, enlargements and improvements follows:

Details of Mill Construction

NEW COTTON MILLS

Georgia, Lavonia. Russell Cotton Mills; $100,000; J. R. Dortch, pres.; heavy duck; use 12s to 13s, two and three-ply cotton yarns; will operate a dye-house.

Macon. Adams Cotton Mills; $200,000; B. T. Adams, pres.; new mill 483 x 105 ft.; costing $75,000; 7,200 spindles, 100 looms; steam power; daily capacity from 45,000 to 50,000 pounds cotton duck.

Massachusetts, Fall River.. Watuppa Mfg. Co.; $40,000; James H. French, pres.; leased space, at 307 Pocasset street; 40 looms; weekly output, 250,000 yards woven web belting; electric drive.

Holyoke. American Braiding Co.; $50,000; Bernett Feinstein, pres. and treas.; leased building on Race street; 500 modern braiding machines; shoe threads, shoe and corset lacings.

New Bedford. New Bedford Cotton Waste Co.; $25,000; Oliver Prescott, pres.; William O. Devoll, treas.; Percy L. Kent, sec.; leased building and making repairs.

Plympton. Queen Mills, Inc.; $25,000; John W. Queen, pres.; William W. Macdougal, treas. and buyer; shoe threads and twines; 500 twisting spindles, dyeing, dressing, spooling and winding machinery installed in old building. (Boston office, 336 A street).

Missouri, Valley Park. Absorbent Cotton Co. of America; $200,000; Ralph McKittrick, pres.; leased building; absorbent cotton and other surgical dressings; steam and electric power.

Nebraska, Omaha. O. A. Albrecht Co.; $150,000; F. J. Despecher, pres.; F. T. B. Martin, treas.; Oscar A. Albrecht, gen. mgr. and buyer; leased two-story building, 4010 Hamilton street; lacing cords;

(*Continued on page* 449)

Southern Mills and Manufacturing Conditions

Developments in Construction and Equipment—Power Supplies and Transmission — Villages

By *George Wrigley**

IN an industry so well standardized as textile manufacturing, no very marked changes and improvements can be expected in the general arrangement of buildings or placing of machinery. However, a comparison of the practice of today with that of only a few years ago, shows a considerable advance in the essential details of construction and equipment. This article describes present day practice and tendencies in the construction of Southern cotton mills

CONSTRUCTION OF BUILDINGS

For textile mills, as for other buildings, reinforced concrete is gaining favor over the old standard construction of brick walls and wooden interiors, commonly known as slowburning construction. For main mill buildings of more than one story, reinforced concrete construction is especially desirable, providing, as it does, solid floors of permanent level. Poor alignment and excessive wear of machinery, are serious in floors for the support of spinning and card room machinery, but not so important for weave room floors, as looms are self-contained machines of relatively short base.

A very important reason for the adoption of reinforced concrete is the increasing difficulty of securing suitable heavy timbers necessary for the old type of construction. Present day practice calls for humidity conditions, under which timber construction rapidly deteriorates.

LARGER WINDOW AREAS

Reinforced concrete construction allows the use of much larger window areas, as the strength necessary in the side wall supports can be condensed into relatively narrow reinforced pilasters. These windows give considerably more volume and better distribution of daylight. With this construction it is customary to use steel sash, sections of which are provided with ventilating units. The windows are carried to the full story height and, with the exception of the narrow pilasters, occupy the entire width of the side walls.

For multiple story mills of reinforced concrete design it is customary to use heavy floor slabs containing the reinforcement, and supported by mushroom columns and side wall pilasters. The floor load at the side walls is carried between pilasters by spandrel beams above the floor line and forming a panel between the floor and the lower side of the window frame. A layer of tarred sand is placed on the concrete floor slab, followed by an intermediate floor of heavy planks and a finishing floor of maple.

The roofs of these buildings are usually of reinforced concrete, following the same general design as the floors, and are fitted with metal skylights. All stairs and baluster curbs are formed of reinforced concrete, and metal non-slip treads and pipe guard rails usually provided.

COMPARISON OF COST

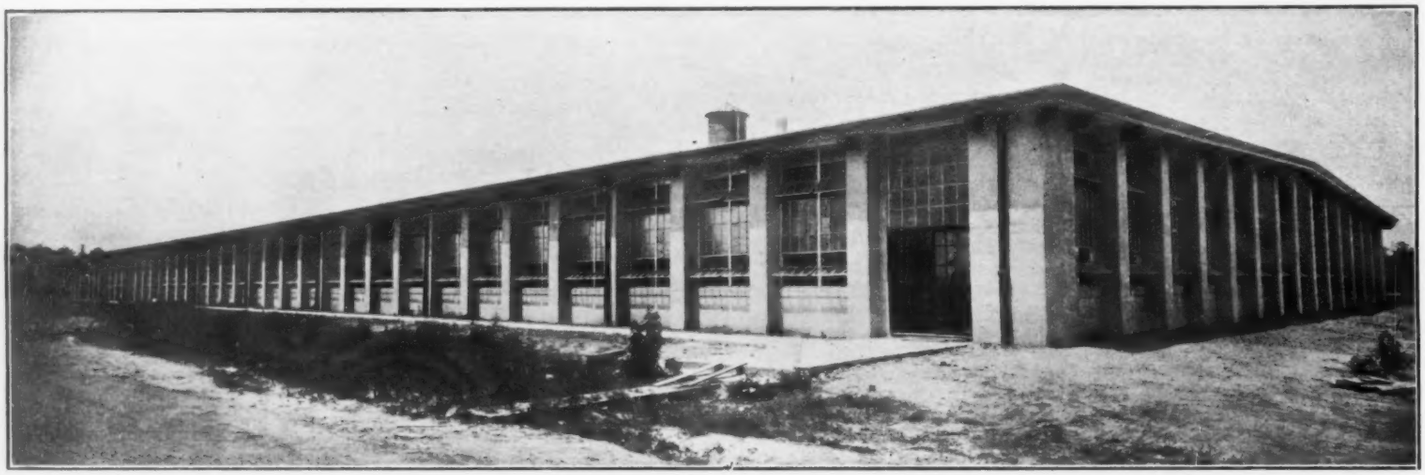
Buildings of reinforced concrete can be made as attractive in appearance as desired by suitable brick trimming to relieve the monotony of the concrete. The first cost is now about 15 per cent. higher than slow-burning mill construction. A lower insurance rate to encourage this type of building is now practically an assured fact.

SINGLE-STORY CONSTRUCTION

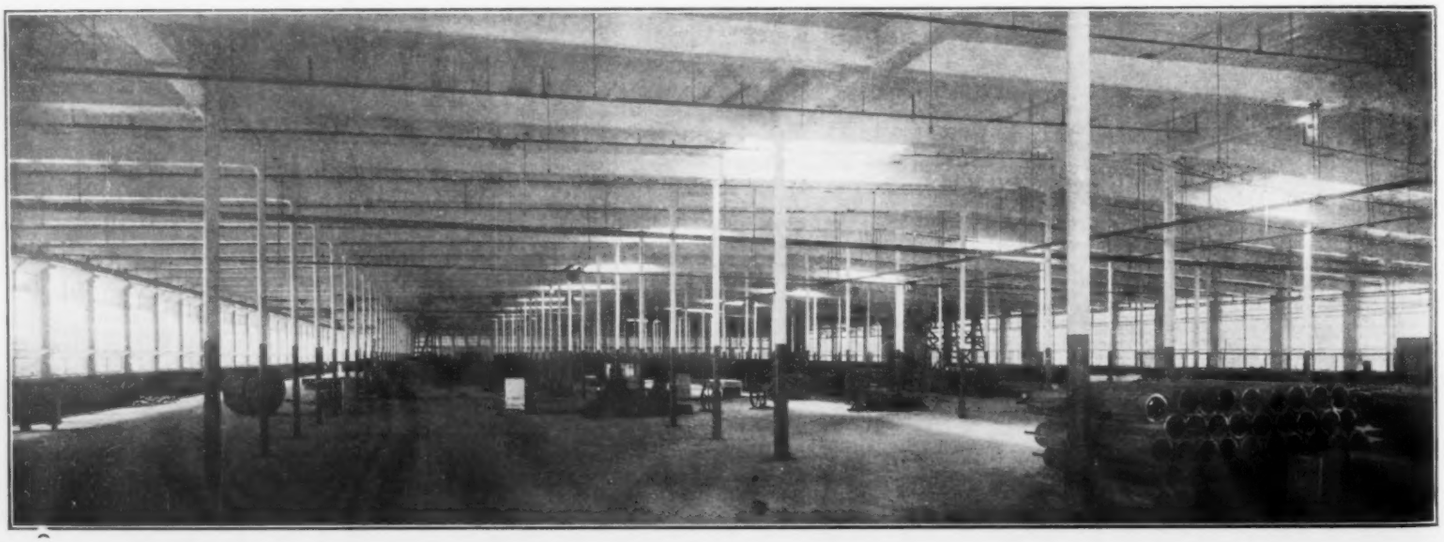
For single-story buildings, an excellent construction embodies reinforced concrete pilasters with steel window sash for the side walls, a floor resting on tar concrete laid on earth, and a roof of standard wood construction with timbers supported by cast iron columns. The columns are omitted at every other bay, and in one recent design every alternate wall pilaster is also omitted, suitable header timbers being provided over the window openings. This construction forms bays of 21 feet 4 inches width, and causes less obstruction to the operating floor, as well as allowing more window area. As the roofs of these buildings carry no machinery load, there is no special objection to this wooden construction and it is, of course, somewhat less expensive than concrete.

Single-story weave sheds for belt-driven looms are built with a basement for shafting area and the looms driven from below. Wooden floors supported by timbers are used in this construction, but intermediate piers are provided to prevent excessive floor sag. These wooden floors allow the necessary flexibility in the location of belt holes, which would be a considerable problem with concrete floors, especially if the arrangement of looms ever had to be changed. Where unusually good daylight is necessary, the roofs for these weave sheds are made of saw-tooth construction.

Cast iron columns cast in vertical molds are superior to wooden columns on account of their more uniform and dependable strength, and the smaller space they occupy. These columns show by laboratory and actual tests as good



ROANOKE MILLS, ROANOKE RAPIDS, N. C.; EXTERIOR VIEW SHOWING SINGLE STORY CONSTRUCTION WITH CONCRETE SIDE WALLS AND STEEL WINDOW FRAMES



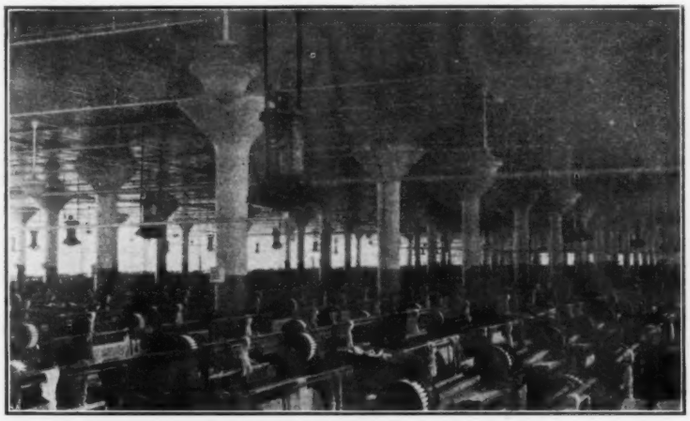
ROANOKE MILLS, ROANOKE RAPIDS, N. C.; INTERIOR VIEW OF MILL DURING CONSTRUCTION SHOWING TIMBER ROOF AND CAST IRON COLUMNS

* With J. E. Sirrine, Engineer, Greenville, S. C.

fire-resisting qualities as the best round wooden columns.

Toilets should always, of course, be placed in outside towers, and some of the older mills not so equipped originally are installing such towers with concrete floors and modern plumbing equipment.

While some very good examples of multiple-story reinforced concrete warehouses have been built to suit special local conditions, ordinary requirements are still well met with the standard one or two-story buildings of slow-burning construction, with wooden side walls, wooden floors and brick fire partition walls. However, even for these buildings, such platforms as are exposed to the weather should preferably be built of reinforced concrete. In a number of plants, simple electrically operated bale hoists have been provided at the warehouses, and their operation has proven quite satisfactory.



REPUBLIC COTTON MILLS NO. 2, GREAT FALLS, S. C.; DAYLIGHT VIEW OF WEAVE ROOM, SHOWING CONCRETE CEILING, MUSHROOM COLUMNS, HIGH DUTY AIR CONDITIONING HEADS AND LOOMS DRIVEN BY INDIVIDUAL MOTORS

Many of the mills are giving more care to the treatment of waste, and for this purpose are building reinforced concrete houses properly arranged for waste handling. It is an interesting fact that the fire losses in the old type waste buildings aggregate approximately the same total amount as in the main mill buildings.

IMPROVED MANUFACTURING CONDITIONS

In the design of new mills the proper arrangement of departments, balancing of equipment, and routing of material in process of manufacture, can be taken care of. In many of the older mills where these conditions were originally unfavorable, a great deal of improvement has been affected by reorganization to obtain better results.

The question of proper air conditioning has only in recent years received the attention it deserves. With modern air conditioning apparatus, the important requirements of sufficient moisture, uniform distribution and automatic regulation are filled. A well equipped air conditioning system will quickly pay its cost in the value of regain alone. In the manufacturing processes the natural moisture in the cotton fiber is dried out and if not restored by artificial means the loss of weight would amount to probably from four to six per cent. Restoration of weight approximating this loss can be effected by application of humidity at the proper stages. Incidentally, but of considerable importance also, are the advantages of better running work, reduction in waste and cleanly washed room atmosphere.

BETTER MACHINERY USED

No attempt is made here to describe in detail the many improvements in cotton mill machinery. However, in general the tendency is toward heavier spinning, twisting and spooler frames, with longer spindle bearings, resulting in steadier running, even at the high speeds of the present day. Spooler design has been materially improved and better adapted to the process. In old spinning and twister frame designs the gauge, ring diameter, and traverse were practically standard and uniform for a large range of yarns. Present practice tends to select frames with these features more suitably proportioned to the work they are to handle and obtain as large a package as practicable.

Many of the older mills that were equipped with non-automatic plain looms have thrown them out and substituted the latest type of automatic looms in their place, or else equipped the old looms with automatic features.

The importance of opening cotton properly is being realized, and many changes in the design and arrangement of opening machinery have been effected. Vertical openers are being installed in many mills, and the results obtained from them are highly satisfactory. Distributors are desirable for picker rooms having a large number of machines. To regulate the supply of cotton to the distributor, one of the local mills has installed a variable speed transmission in the bale-opener room, controlled mechanically by a cable operated by hand from the picker room. From time to time the picker operator sets the indicating dial in the picker room to correspond to the number of machines running. This in turn, through the cable, adjusts the speed of the bale-breaker feeder so that the proper amount of cotton is fed into the conveyor intake and very little surplus is thrown on the picker room floor.

LIGHTING THE MILLS

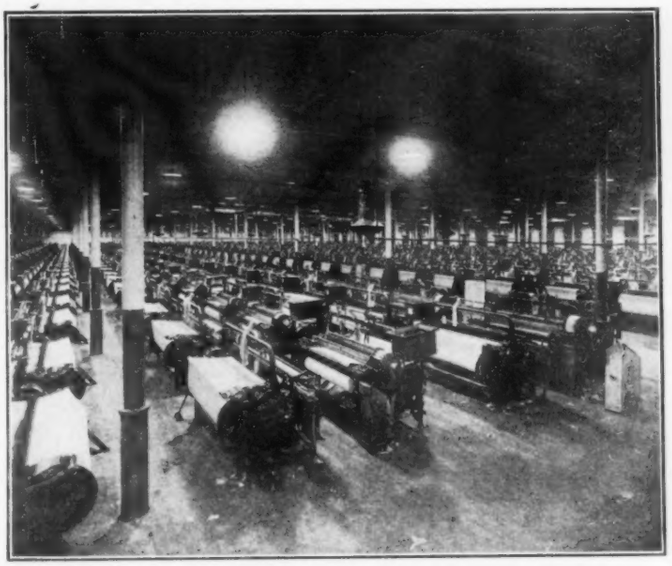
The lighting of mills, both from natural and artificial sources, has received much detail attention. The larger window areas of steel sash with reinforced concrete construction, better distribution by prism glazing, and maintenance of light interiors by painting, have all been contributing factors to this end. For special cases, such as weave rooms making fine goods, the saw-tooth roof has strong advantages, and a number of plants embodying this construction have been built.

In artificial lighting the tendency is toward the use of the larger and more economical sizes of gas-filled incandescent lamps. It is necessary, however, to provide uniform distribution, sufficient intensity, and avoid shadows and glare. With story heights of approximately fifteen feet, it is not easy to fill these requirements with very large units. Considerable recent improvements have been made in lighting fixtures for industrial purposes and these fixtures especially adapted to cotton mill illumination.

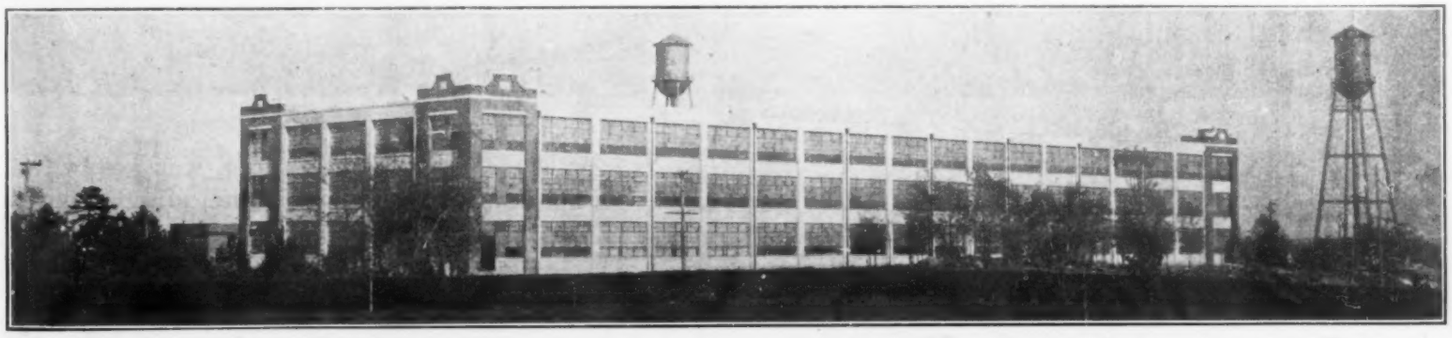
Within the past year several important and satisfactory installations of these new units have been made. The reflecting cap unit in the 150 watt and 200 watt sizes fulfills quite well the requirements for usual cotton mill conditions. This unit consists of a porcelain enamel flat bowl and a small reflecting cap that covers the lower half of the lamp, so that no direct rays of light can reach the eye of the operative. The light of the lamp is reflected to the large area of the flat bowl above, and by it reflected in turn to the working plane below. This unit is, practically speaking, a modified indirect type, providing as it does an artificial ceiling of limited area but high reflecting efficiency.

Trial installations comprising moderate and large units with prism glass and dome type white enamel reflectors are now being made. The results of these trials will possibly show that good results can be obtained from any one of several types.

In mills of reinforced concrete construction with individual drive, where the white ceilings are of permanent high reflecting value, the totally indirect system, in units of 500 watts, or even larger size, provides ideal illumination. This system is slightly more expensive to operate than the direct system. With these indirect units it is desirable to use clear glass cover bowls

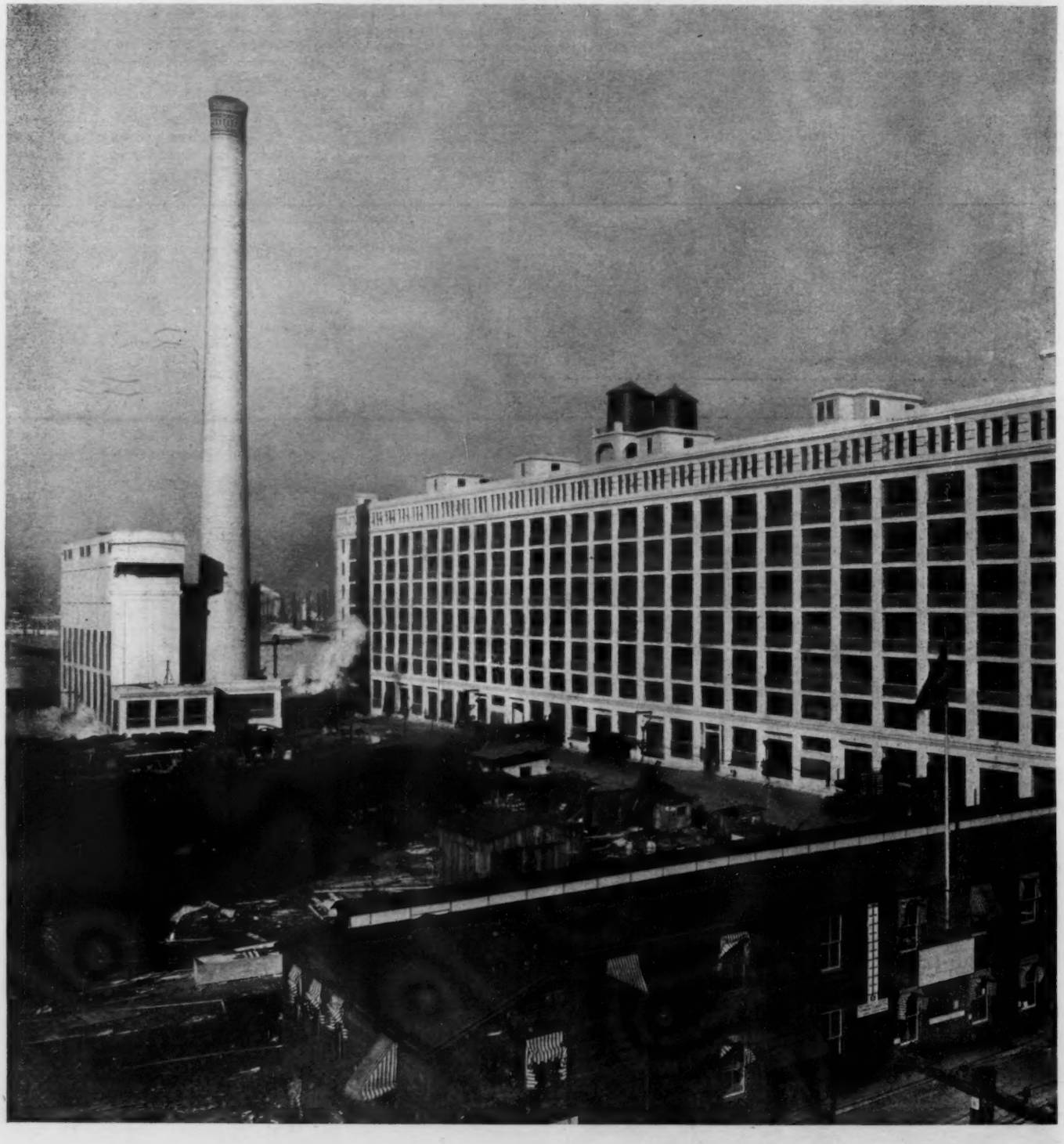


LANETT COTTON MILLS, LANETT, ALA.; NIGHT VIEW OF WEAVE ROOM, SHOWING SINGLE STORY WEAVE SHED CONSTRUCTION WITH SAW TOOTH ROOF, CAST IRON COLUMNS, HIGH DUTY AIR CONDITIONING HEADS AND REFLECTO-CAP LIGHTING UNITS. LOOMS ARE BELT DRIVEN FROM BELOW



REPUBLIC COTTON MILLS, NO. 2, GREAT FALLS, S. C.; EXTERIOR VIEW OF MULTIPLE STORY REINFORCED CONCRETE CONSTRUCTION

Concrete for Textiles



This is the Fleet Supply Base U. S. Navy, Brooklyn, N. Y. Built by the U. S. Navy for storage and manufacturing.

Wouldn't concrete buildings like these make very attractive textile mills or store houses?

2,250,000 square feet of floor was ready for occupancy in 7½ months, including driving 12,000 concrete piles.

The facts concerning this base are: One storehouse, 8 stories (with court for factory pur-

"Turner for Concrete"

poses) 700 feet x 200 feet—One storehouse (for storage only) 8 stories 700 feet x 200 feet—Two warehouses, 1 story, one 355 feet x 300 feet, one 355 feet x 361 feet—Power House, 3000 H. P. (Authorized June 22nd, steam turned on November 12th.)

Turner Construction Co., 244 Madison Ave., New York

Boston Buffalo Pittsburgh

Weave Shed, Royal Weaving Co., Pawtucket, R. I.

Keeping Pace With the Times

In this coming era of industrial expansion you will need the expert advice and engineering service which our organization is prepared to offer.

We prepare plans and specifications for erection and complete equipment of textile mills and other industrial plants, including steam and water power plants.

We can help analyze your mill problems. Write for details of our service.

CHARLES T. MAIN

Mill Engineer and Architect

201 Devonshire Street **BOSTON, MASS.**

4-67

over the reflectors to prevent accumulation of lint. Several large installations of this type are in satisfactory service.

In some special cases where color values are important, such as in boarding and matching rooms of hosiery mills, the so-called daylight lamps with blue glass bulbs are desirable.

THATCHER SPINNING CO., CHATTANOOGA, TENN.; INDIVIDUAL MOTORS DRIVING SPINNING FRAMES THROUGH SILENT CHAIN

The first cotton mills built in the South were driven mechanically by water power, and necessarily located at the power site. With the development of steam plants and a suitable supply of fuel, the location of mills was determined by the more important considerations of accessibility, labor market and general manufacturing conditions. At present, the isolated steam plant has a most formidable competitor in purchased electric power.

Practically the entire Southern cotton manufacturing territory is served by the transmission systems of the several large electric companies. Two general classes of power are supplied, known as primary power, which is contracted to be furnished every working day in the year; and secondary power, which is furnished when the power company has it available, but at least for a stated number of months in an agreed period.

CHANGES IN OLD MILLS

Secondary power is a logical supply for the mills with existing steam plants, changing over from mechanical to electric drive and retaining these steam plants as auxiliaries. In these plants it is now customary to install generators of sufficient size for the operation of the entire mill, these generators being rope driven from the old reciprocating engines. With such an arrangement the change from purchased secondary to locally generated power can be quickly and easily made at such times as the purchased power is cut off, due to low water or other causes. With the older system of electric drive, where there were only a few large group motors installed, such generators, while convenient, were not necessary. In these older installations the entire shafting system was retained and simply cut into sections, separated by face plate couplings fitted with plate inserts. In the more recent installations of small group, four-frame or individual drive motors, as much shafting as possible is cut out and there is no chance of coupling up for mechanical operation, so that a generator is a necessity. Secondary power is of special advantage in furnishing a second source of supply and thus providing insurance against a complete shut-down of the mill.

The standard electric power supply is 3 phase, 60 cycle, and the lower voltages of 550 and 230 have practically superseded the older systems of 2,300 volts. In some parts of the Southern territory the 40 cycle system is still in use, and a few plants furnish 2 phase service.

For new isolated plants, either as principal source of supply or as an auxiliary, the steam turbo-generator is now practically standard as a prime mover. This is due partly to the abandonment of mechanical drive, the lower first cost of turbines as compared with the reciprocating engines, and the high continued operating economy of the former, together with its other incidental advantages.

ERLANGER COTTON MILLS, LEXINGTON, N. C.; POWER PLANT-STEAM TURBO GENERATOR

The adoption of steam turbines has led to changes in operating practice in all other parts of the power plant, such as high boiler pressures, the use of superheat and higher vacuum, the latter requirement necessitating larger condensers with spray ponds or cooling towers. The arrangement and design of power plant auxiliary equipment has been improved in line with the improvements in prime movers.

For steam turbine operation at least a moderate degree of superheat is desirable, and is easily and economically supplied for plants of moderate size in the vertical fire tube boiler giving about 30 to 40 degrees superheat. This type of boiler can be built for operation at higher pressures than the horizontal return tubular type. In larger plants the water tube boiler is desirable, and in a new installation of a 3,000 kw. plant, four boilers of this type, with a combined capacity of 2,036 boiler horse power, will furnish steam at 200 pounds pressure and 100 degrees superheat.

Stokers are at last coming to be recognized as a highly desirable equipment for the boiler room, especially in the larger plants. Several satisfactory installations are now in operation in southern mill plants.

COAL HANDLING APPARATUS

Heretofore, labor has been cheap and coal has been handled either in barrows or in small industrial cars. There is a considerable demand for simple and inexpensive coal handling apparatus.

Economizers, without doubt, are worth while in plants of moderate size and in installations exceeding 1,000 boiler horse power capacity show excellent returns on the investment. Condensers of several types are being installed, the selection including surface, low level jet and barometric types, depending largely on local conditions. In nearly all cases some form of cooling water system is necessary, and is provided by spray nozzles or by cooling towers.

The proper drives for auxiliaries is a very important part of the plant design, and is best solved by a combination of electric and steam drive to give the proper heat balance by furnishing the right amount of steam for heating the feed water, and in some cases, heating the mill during winter months. The centrifugal boiler feed pump has proved its superiority to the old straight line pumps, and a number of these units have been installed.

Gradually the necessity for proper instruments in the boiler room is being recognized and in the best plants reasonably good equipments of the necessary apparatus are maintained. These equipments include pressure recording gauges, thermometers, draught gauges, CO_2 recorders and flowmeters. Certainly in every plant a feed water meter should be installed, and the other instruments also, where the operators are of sufficient intelligence to profit by their indications.

TENDENCY TOWARD SMALLER MOTORS

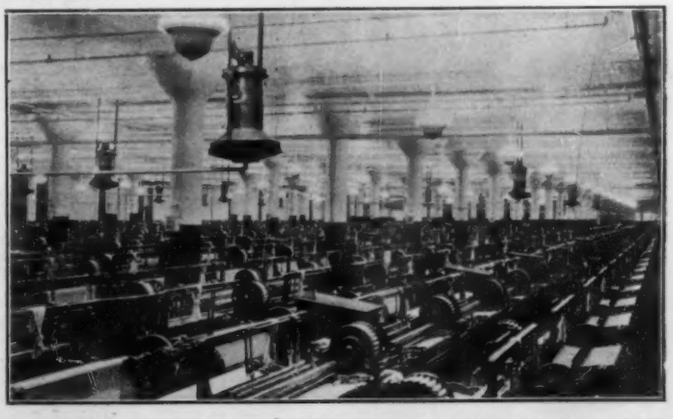
The electric drive is now the accepted standard for proper transmission. Beginning with motors of relatively large size, the tendency year by year has been toward the use of smaller units. For a long time the four-frame drive for spinning and twisters was popular, and still has many advocates. At the present time the best design indicates the use of individual motors for pickers, spinning frames, twisters and spoolers, with small group motors for other preparatory departments. Loom drives are determined by local conditions, but they are preferably individually driven.

The various objections to individual motors have been met and answered and the design of motors, with their control apparatus, has been steadily improved. Several large installations in mills of from 30,000 to 50,000 spindles, equipped throughout the spinning and weave rooms with individual motors, have proved the advantages of this drive by satisfactory operation over terms of from two to five years.

For many years only partial installations of the individual drive existed and figures on production were not convincing, although they were consistent with theoretical expectations. Now, with this experience of several years' operation in completely equipped mills, the actual figures of production are available and prove the case conclusively.

The amount of production increase depends somewhat on the design and condition of the drive with which the individual drive is compared. The principal reason for increased production with individual motors is the elimination of belt slip. If the drive with which it is compared is of the best type, with good belt contact and properly maintained tension and cleanliness, the probable increase would be in the nature of 4 to 5 per cent. Under average conditions met in practice, the operating records show from 5 to 8 per cent.

Pickers are preferably driven by motors mounted on the "A" frames and driving through belts.



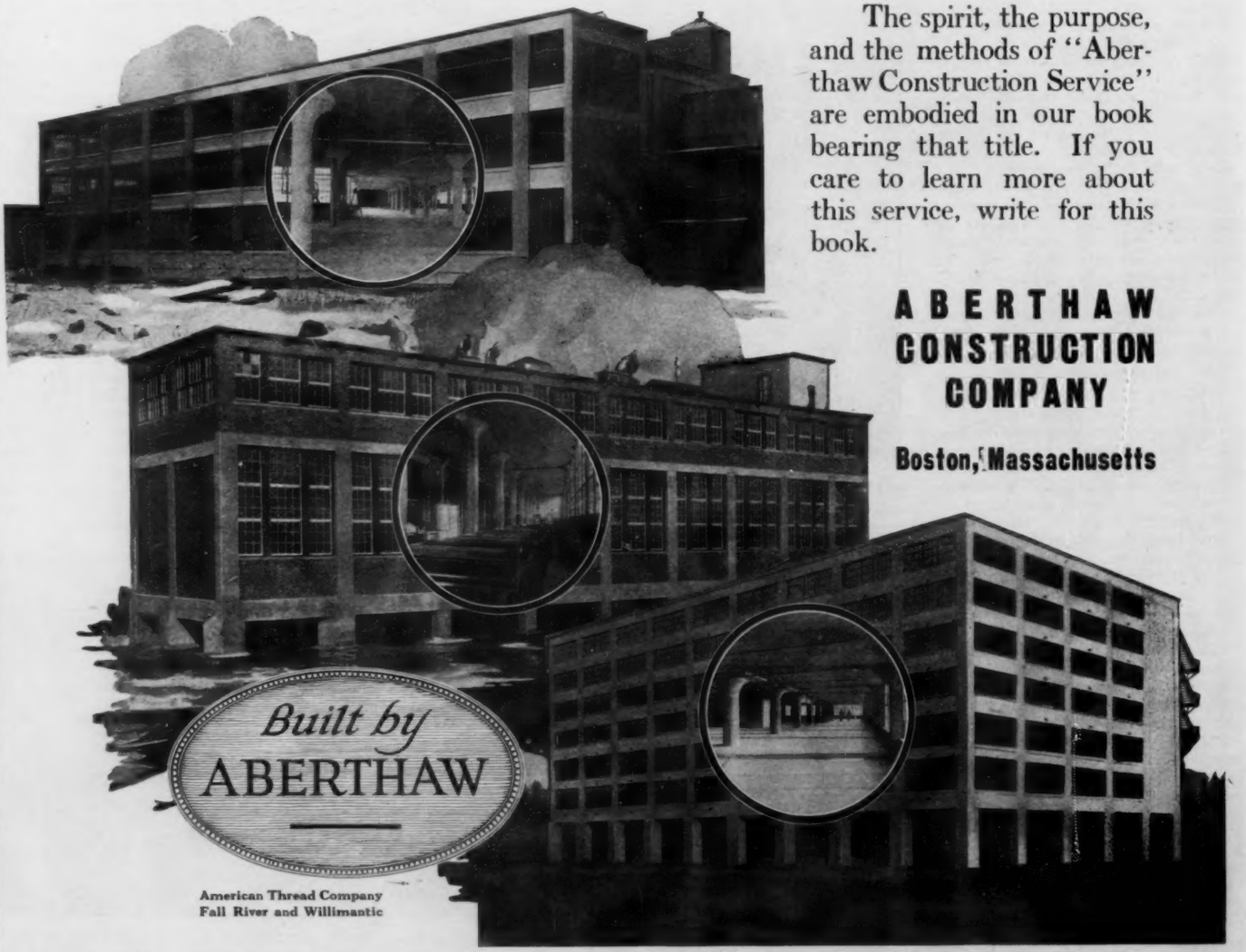
REPUBLIC COTTON MILLS, NO. 2, GREAT FALLS, S. C.; NIGHT VIEW OF WEAVE ROOM, SHOWING INDIRECT LIGHTING SYSTEM

In the card room no suitable individual motors of reasonable cost have been developed for cotton cards. It is doubtful if sufficient advantage could be ob-

ABERTHAW

as your BUILDING DEPARTMENT

Through a unit sub-organization, made up by careful selection from our permanent force, we furnish and control all labor, purchase all materials, and let all sub-contracts for your construction work. There is no divided responsibility; your interests and ours coincide in the effort to secure the best possible results. Our compensation is measured by the service rendered. In this manner we have acted repeatedly as the building department for many clients. In similar manner we can serve you.



American Thread Company
Fall River and Willimantic

The spirit, the purpose, and the methods of "Aberthaw Construction Service" are embodied in our book bearing that title. If you care to learn more about this service, write for this book.

ABERTHAW CONSTRUCTION COMPANY

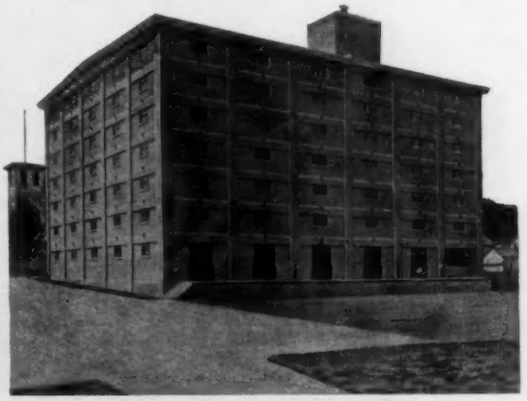
Boston, Massachusetts

ABERTHAW CONSTRUCTION SERVICE

for the Textile Industry

covers a wide range of construction service, including complete mills and industrial villages, dyehouses, storehouses, weave sheds, singe and dust houses, dams, flumes, penstocks, headgates and gate houses, filter and bleach tanks, coal pockets, foundations, etc.

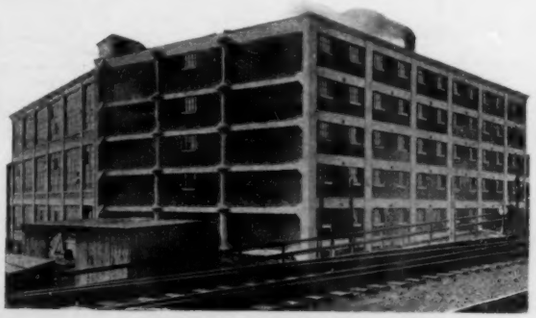
Although pioneers in reinforced concrete construction considerable of our work has been in standard mill construction. We are not confined to any type of material or design and build to obtain the best permanent results.



Storehouse of Goodyear Cotton Mills, Killingly, Conn.

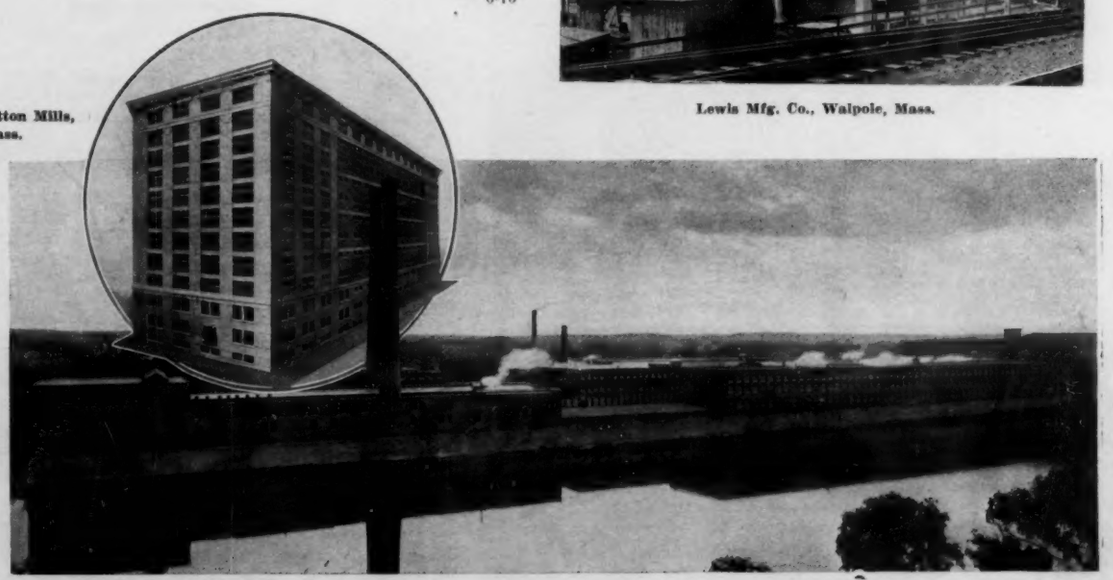
The size and permanence of our organization and our control of building materials make it possible to set up instantly a sub-organization and begin work before detail drawings are completed.

Reputation for the best work quickly done at reasonable cost has been the basis of our selection for carrying through our various undertakings. Our clients can best tell you how well that reputation has been built into their buildings.



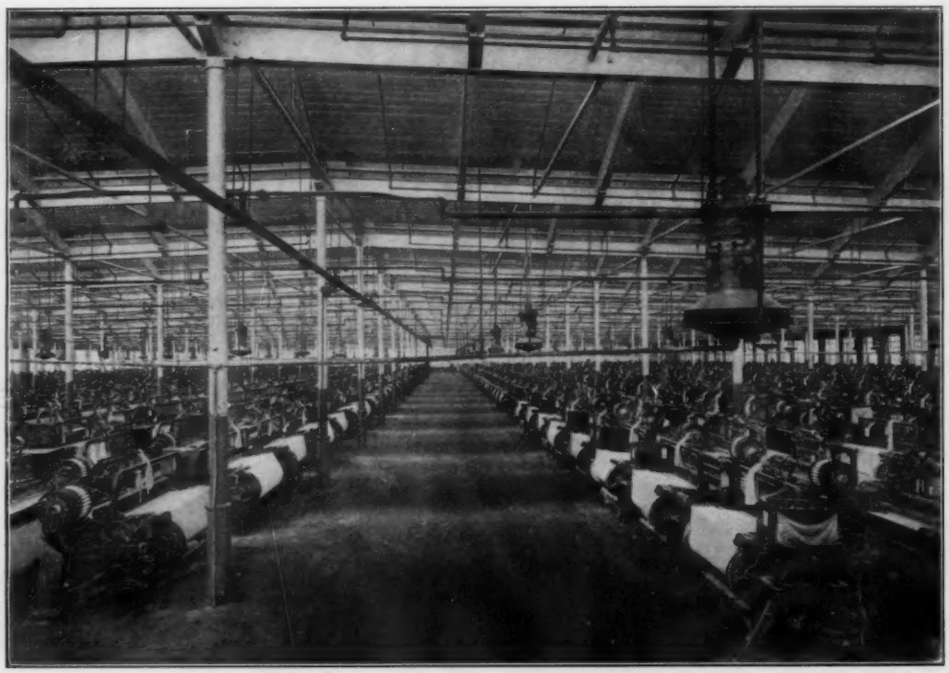
Lewis Mfg. Co., Walpole, Mass.

6-75



Massachusetts Cotton Mills, Lowell, Mass.

Pacific Mills, Lawrence, Mass.



WEAVE SHED

LANETT COTTON MILLS

LANETT :: ALABAMA

::

J·E·SIRRINE :: ENGINEER

GREENVILLE SOUTH CAROLINA

tained to warrant the very high first cost of any motors now available. Individual drives have been developed and installed in several cases for combers, loopers, drawing frames and roving machinery. Improvements, in experience gained from operation, may make these drives desirable for general use, but at present the group drive, or four-frame drive with slow speed motors, is generally used.

CHAIN DRIVE ON SPINNING FRAMES

For spinning and twister frames the constant speed induction motor with a chain drive best fills the general conditions to be met. Several installations have been made where the motors are direct connected to the cylinder shaft, but the now more commonly accepted practice is to use short center chain drives, with the motor mounted on a cast iron support. This form of drive is efficient, quiet, of reasonably good life, and speed changes can be made at will by changing sprockets.

A comparatively recent development of this class is the application to old spinning frames in mills changing from locally generated mechanical power to purchased hydro-electric power. Two large installations, comprising about 400 motors, have been completed and in operation for a year or more, and something over 1400 similar drives are now being installed. Details of supports, castings for the chains, and other items have been improved as the result of operating experience, but even the earlier installations are successful and highly satisfactory.

For looms driven by individual motors the gear drive between the motor and loom seems to be the best combination. This has stood the test of years and there seems to be no necessity for changing it. A rather unlooked for result of individual loom drive is the decreased cost of maintenance when compared with the mechanical drive system. These little motors are preferably totally enclosed and practically accident proof, the main cost of upkeep being for the small protective fuses.

The cost of individual motors for old cotton looms equipped with mechanical drive is hardly justified. A good compromise is reached by driving each line of loom shafting by a separate motor through a silent chain drive. This eliminates all counter-belt slip, and each line of shafting is operated at its proper fixed speed.

The individual drive is especially desirable in connection with the reinforced concrete mill design, obviating, as it does, the difficult cutting of belt holes and allowing the maximum flexibility in arrangement of departments and placing of machinery. This might be a very important consideration in the event of change in product or equipment.

Modern Tendencies in Mill Construction

Industry Is Reaching Higher Standards Both Inside and Outside of Buildings

By *S. B. Lincoln* *

MODERN tendencies and improvements in mill construction are all directed towards one end, that of securing the greatest combined efficiency from the plant as a whole. With this end in view, manufacturers have, during the last few years, shown an increasing interest in everything pertaining to this subject. The preliminary work leading up to the actual carrying out of new projects in textile mill construction is to-day probably receiving more careful consideration than heretofore.

The mill architect or engineer is to-day better recognized as a necessity in producing an efficient manufacturing plant and is being called into service on the problems of the manufacturer at the very inception of a project. In many cases he is consulted before the site for a mill is purchased, and it may truthfully be said that of the modern textile mills being constructed, probably a higher percentage of them than ever before have had the careful study of a competent architect or engineer, and have had preliminary studies and machinery plans worked out in advance of actual construction work.

The layouts of machinery have been carefully worked out, the relative arrangement of the departments, the relation of new improvements to the existing plant have been studied, and in every intelligent way thought has been given to building with foresight, and to the production of the most efficient plants which manufacturers will be enabled to operate favorably in competition with those in any other part of the world.

FIG. 1. NEW BUILDING OF THE DUPLAN SILK CO. IS AN EXCELLENT ILLUSTRATION OF A MILL OF PLEASING APPEARANCE

USE FIRE-RESISTING MATERIALS

On the construction features of modern mills, perhaps the most marked tendency of the times is the coming into almost universal use of fireproof or fire-resisting materials. It seems only a few years since the first textile mill was constructed of reinforced concrete in this country. To-day the larger mills who do not use this material are rare; and for mill warehouses the use of concrete to-day may be said to be almost universal, combining, as it does, its low maintenance cost with the increased protection against fire.

BETTER LIGHT, LESS VIBRATION

The use of steel sash has advanced at about the same rate as concrete construction, and with the increased daylight thus made possible, the textile mills of to-day are not only being constructed wider than before, but they are at the same time more rigid, freer from vibration and better daylighted than the mills of a few years ago. It is well that this is so, because textile machinery is being constructed heavier and is being run at higher speeds than formerly, thus requiring an improved type of construction to meet these conditions.

In those mills requiring the most accurate regulation of temperature and humidity, every attention is being given to the proper insulation of exposed surfaces and insulated roofs. Double windows are now a matter of every-day use in textile mills for various purposes, whereas a few years ago this construction was used only for weave shed skylights where it was necessary to prevent dripping on the cloth.

MORE ATTENTION TO APPEARANCES

The past few years have seen remarkable improvement in the attention given to the appearance of textile mills, and it is fair to say there has been in the past a great opportunity for improvement. Until recently the idea has prevailed that the exterior of a mill was of no particular importance, and that any money spent to improve the appearance was needlessly wasted.

In a number of recent instances it has been found that with a little study on the part of the architect or engineer a marked improvement in appearance could easily be secured at no extra cost, and when a very small amount is added to the cost, say not to exceed 1 per cent. of the total cost of the building, very pleasing results indeed can be secured. Most owners, on having this properly presented to them, have been only too glad to have this part of the work given more attention.

HEATING, VENTILATING, HUMIDITY

In the heating and ventilating of modern mills, improvements are constantly being made, and the installation of automatic means of temperature control are far more numerous to-day than ever before. A few years ago the mills having automatic temperature control in each separate room probably represented a comparatively small number, while to-day the new mills which do not include this feature are few and far between.

In certain branches of the textile field the supplying of proper humidity has long been recognized as a necessity, but such installations are to-day coming into more common use, and greater attention is being given their regulation

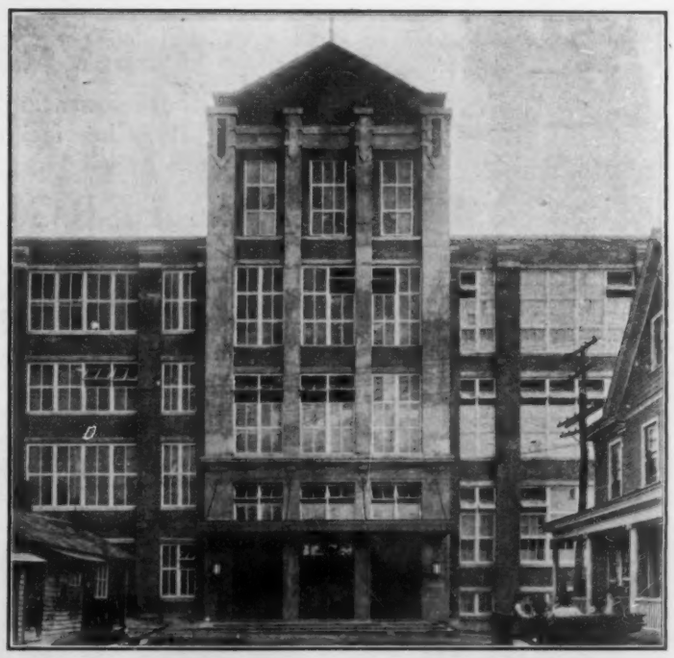


FIG. 2. MAIN ENTRANCE TOWER AT DUPLAN SILK MILLS

* Manager, Chicago Office, Lockwood, Greene & Co., Engineers

STANDARD FACTORIES

Fer'g

BUILDING costs are falling. A Ferguson fair-deal contract gives you the savings.

For information as to Ferguson building or alteration facilities, phone, wire or write

THE FERGUSON COMPANY

ENGINEERS and BUILDERS

6523 Euclid Avenue CLEVELAND Rosedale 6854

Fact

SPECIAL BUILDINGS QUICKLY

GUARANTEED COMPLETE IN SEVEN WEEKS

uson

LOW COST and quality always; speed if you need it—and will pay for it.

For information as to Ferguson building or alteration facilities, phone, wire or write

THE FERGUSON COMPANY

ENGINEERS and BUILDERS

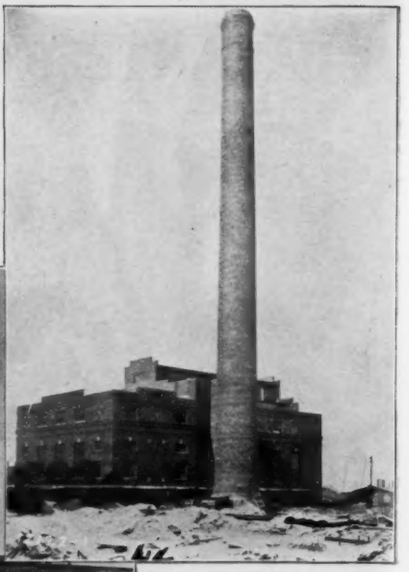
6523 Euclid Avenue CLEVELAND Rosedale 6854

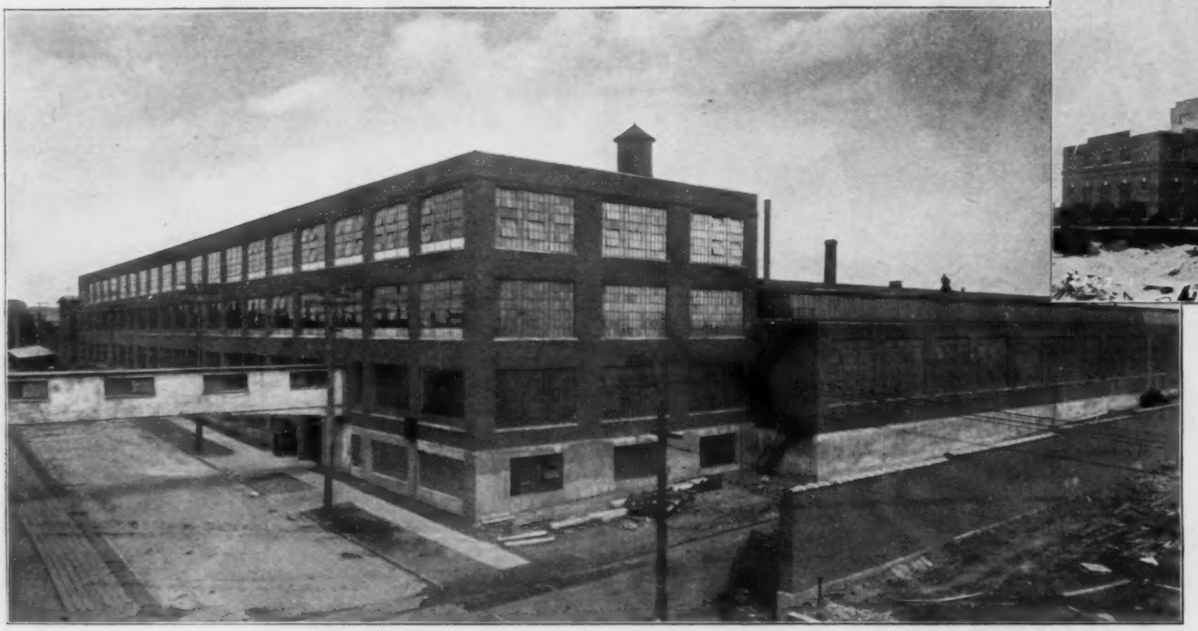
ories

AT LOW COST WITH ALL EQUIPMENT

W·C·K *Design & Construct*

TEXTILE MILLS, POWER PLANTS FOUNDRIES, MACHINE SHOPS, *etc.*

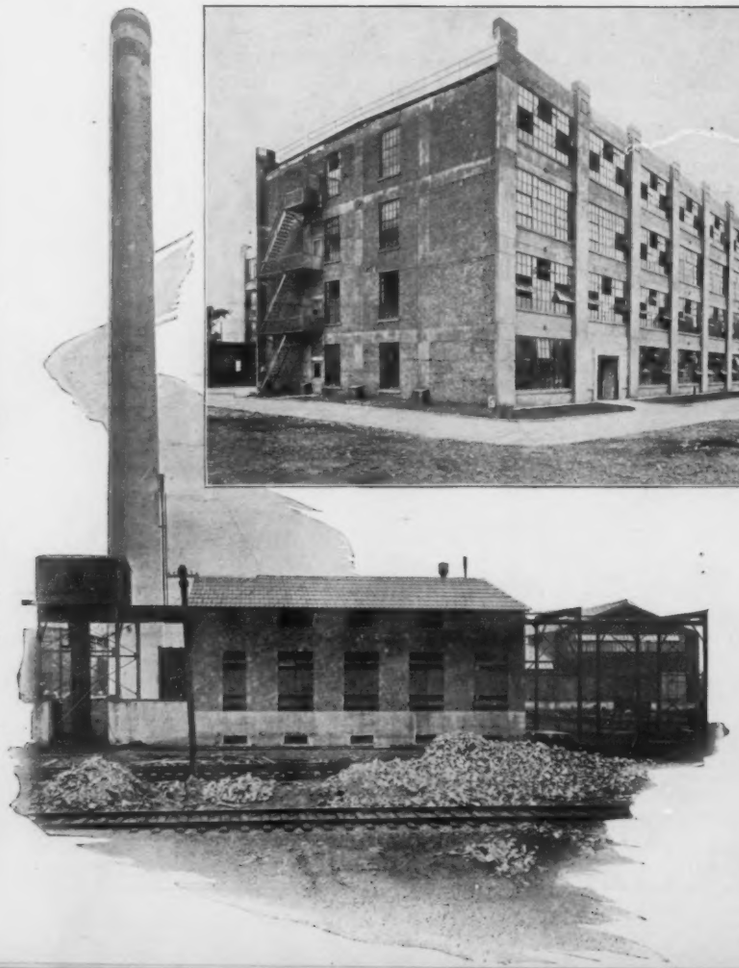




ENGINEERS *and* **CONSTRUCTORS**

A purely engineering organization with nothing to sell except services

W·C·K



W·C·K reduce first cost and subsequent overhead by the proper design and efficient, speedy construction of industrial plants of any character.

WESTINGHOUSE CHURCH KERR & CO., INC.

Engineers & Constructors

37 WALL ST., NEW YORK

CHICAGO	WASHINGTON	MONTREAL	SAN FRANCISCO
Conway Building	Wilkins Building	Shaughnessy Building	Southern Pacific Building

FIG. 3. INSPECTION DEPT. OF BLACK CAT MILL, BENNINGTON, VT. AN EXCELLENT EXAMPLE OF GOOD DAYLIGHTING

and maintenance, to the end that uniform conditions throughout may be constantly maintained.

HANDLING COAL AND ASHES

In power plants of modern mills the tendency of to-day is increasing in favor of some form of electric power. The flexibility of this form of power cannot be excelled. In case of those mills which have their own power plants there has been of late a decided interest shown in mechanical coal and ashes handling equipment; the increased scarcity and high cost of common labor, together with railroad congestion, shortages of coal, etc., have all contributed to this result, and the fortunate mill to-day is one that can run its coal cars on to an elevated trestle and dump by gravity to a convenient point for storage. Most mills, however, are finding it necessary to install mechanical means for elevating and handling their fuel.

BETTER ARTIFICIAL LIGHTING

Great progress has been made during the last few years in the matter of lighting industrial plants of all kinds, and in no branch of industry has this been more noticeable than in the textile and allied trades. It has been recently remarked that of all the necessities for efficient manufacturing the only one that has not risen in price from year to year is the cost of lighting, this being explained by the fact that modern and more efficient lamps, combined with the great increase of efficiency of power plant units, and lower charges for purchased current, have offset the rising cost of materials.

The modern gas filled lamps are now in almost universal use for large lighting units. The manufacturers of fixtures have developed new and more efficient types of reflectors, and have developed better standards for distribution than ever before. In the prevention of shadows and elimination of glare great progress has been made. There is probably no phase of the equipment of modern mill that can be carried out in more different ways than the arrangement of lights, and this is a matter that will always require careful study in order that the type of units chosen, together with their spacing, sizes, etc., shall fit in the best manner the requirements of the particular case.

The use of indirect lighting has advanced rapidly, and the soft uniform light, with the absence of shadow, secured from this type of fixture will in many instances justify the increased current consumption, particularly where good ceilings are available for a reflecting surface, and where the work to be done is of an exacting nature.

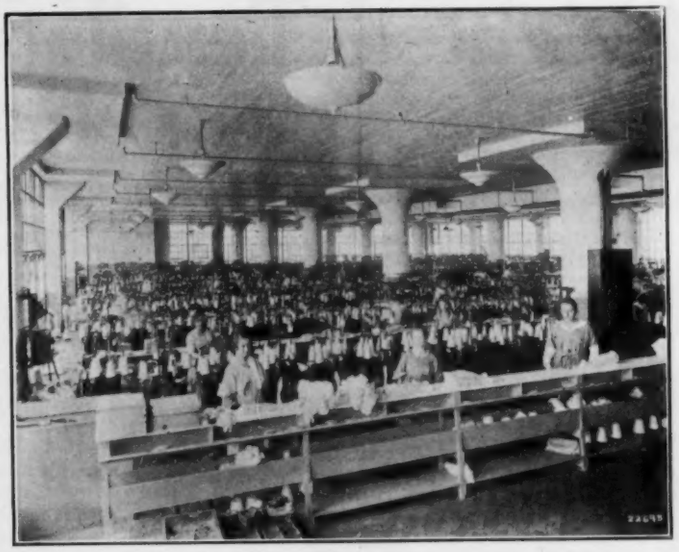


FIG. 4. SEAMLESS KNITTING ROOM IN HOLEPROOF HOSIERY COMPANY'S NEW BUILDING, SHOWING A MODERN INSTALLATION OF INDIRECT LIGHTING

PLUMBING, LOCKERS, LUNCH ROOMS

In the provisions for the comfort and convenience of employes, the past few years have seen an advance in standards and methods greater than that of any previous period of twenty years or more. The plumbing fixtures, the locker rooms and employes' wash rooms, as installed in the modern mill of to-day, are provided with the highest grade of plumbing fixtures, and every modern convenience which can be devised. Lunch rooms of large size, hospitals, trained nurses, rest rooms and day nurseries, which a few years ago would have been thought of as having no connection with modern textile mills, now form a part of many plants, and their number is rapidly increasing.

The spirit in which these are supplied by the employer to-day is not that of doing this as a special favor or privilege to the help, but it is becoming plainly seen that these are a necessity and a proper part of the manufacturing equipment, in order that the employes may be able to give their best service for the common good of the organization.

HIGHER STANDARD OF "HOUSEKEEPING"

In closing this article, it can properly be said on the subject of maintenance of efficient plants that there prevails to-day a higher standard throughout of "housekeeping," as it is termed by the insurance companies. Mills are kept cleaner, better painted than ever before; grounds are being kept up, and the whole general tone of the textile industry is on a higher plane. And last, but not least, a better relation prevails between the employers and employes, and this is, after all, the object most to be desired.

DESCRIPTION OF ILLUSTRATIONS

In the accompanying illustrations, Fig. 1 shows the new building of the Duplan Silk Co., Hazleton, Pa., which is an excellent illustration of a large reinforced concrete mill of pleasing appearance. The tapestry brick, with white mortar joints, and the pleasing lines of the building, add greatly to the appearance at a small added cost. Fig. 2 shows the main entrance tower with the pleasing results obtained by careful architectural treatment.

FIG. 6. ONE OF EMPLOYES' WASH ROOMS IN OSCAR HEINEMAN SILK MILLS

Fig. 3 is an interior view of the inspection department of the new underwear mill of the Black Cat Textile Co., at Bennington, Vt., and is an excellent example of the best day lighting, secured by the use of wide areas of steel sash combined with flat slab reinforced concrete construction. Fig. 4 is an interior view of the seamless knitting room on the third floor of the Holeproof Hosiery Company's new manufacturing building at Milwaukee, Wis. This shows a modern installation of indirect lighting as applied to the knitting industry. The fixtures are on 14-foot centers in each direction, and contain 300-watt lamps. The flat slab concrete ceiling provides the best kind of reflecting surface. The duct system for air distribution may be seen on the ceiling at the right of the picture.

Fig. 5 is an interior view of the mule spinning department in the new mill of the Stephenson Underwear Mills, South Bend, Ind., and shows the ready adaptation of reinforced concrete construction to woolen mills. The spacing of the columns across the building is approximately 28 feet, thus affording the best kind of unobstructed floor space for mule spinning. The ample

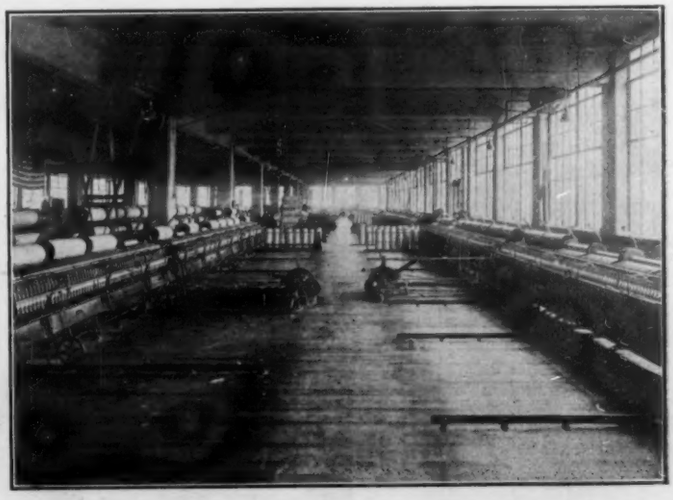


FIG. 5. MULE SPINNING DEPT. OF STEPHENSON UNDERWEAR MILLS SHOWS READY ADAPTATION OF REINFORCED CONCRETE TO WOOLEN MILLS

Austin No. 4 Standard, size any number of bays 30 ft. wide by 20 ft. long, built in 60 working-days.

A Well-Lighted Textile Building Ready Before Spring

Cross Section Austin No. 4 Standard. The top row of saw-tooth sash are top hung and are opened by means of sash operators. The bottom chords of all roof-trusses are set horizontal, affording a level suspension for shaft hangers. The trusses are evenly spaced 10 ft. apart, two to a panel, and will carry shafting loads up to 3,000 pounds on ten-foot centers. Shafting is readily installed in either the transverse or longitudinal direction.

Brief Specifications of Austin No. 4 Standard

Width—Any multiple of 30 ft.

Length—Any multiple of 20 ft.

Clearance Under Trusses—15 ft.

Excavations and Grading—On normal site excavation for standard foundations, and grading to within 3 ft. of outside of building.

Foundations—Concrete, 1 part cement—3 parts sand—5 parts stone or gravel.

Floor—5-inch concrete base with monolithic finish.

Side Walls—Common brick, selected for facing, laid in lime mortar gauged with cement.

Window Sills—Concrete.

Ends—Asphalt shingles on wood sheathing

Columns—Structural steel.

Roof Structure—Structural steel trusses with level bottom chord, 2½-in. x 6-in., dressed and matched yellow pine sheathing.

Water Proofing—4-ply built up felt and asphalt roofing or equal.

Sash and Ventilation—Three eight-light ventilating panels in each bay of wall, hand operated. Upper row of sawteeth sash hinged at top, operated by mechanical device.

Painting—Structural steel and steel sash, one shop coat and one field coat. Exterior wood work, 2 coats of lead and oil. Interior walls and ceiling, 2 coats of mill white paint.

THE AUSTIN METHOD

For U. S. A. and Canada, address nearest office:

CLEVELAND - - - 16120 Euclid Avenue, Eddy 4500
NEW YORK - - - - - 217 Broadway, Barclay 8886
PHILADELPHIA - 1026 Bulletin Building, Spruce 1291
WASHINGTON - - 1406 G Street N. W., Franklin 6420
PITTSBURGH - - - - 493 Union Arcade, Grant 6071
DETROIT - - - 1452 Penobscot Building, Cherry 4466
CHICAGO 1374 Continental Com'l Bank Bldg., Wabash 5801

For Foreign Business: The American Steel Export Company, Woolworth Building, New York City.

Why be satisfied with slow production when you can move into a well lighted spacious building like that shown above in 60 working-days. A building that is exactly suited to your needs, with *good light evenly* distributed yet free from the direct rays of the sun, with bays 30 ft. x 20 ft. and any size you require.

This is Austin No. 4 Standard. The Austin Company is prepared to build it in record time, and in spite of adverse weather conditions. With all essential materials, fabricated steel, steel sash, lumber, etc., in Austin stocks located at strategic points east of the Mississippi, no time will be lost in getting actual construction under way. No time is lost in making plans, foundations can be started at once, steel will be on hand when needed. The Austin Method produces the *most* building for the *least* amount of the owner's time and money.

The Austin Book of Buildings

This 64-page book will furnish full detail of Austin service. It gives complete data for Austin No. 4 Standard and the nine other Austin Standard types as well. If your need is urgent use the wires.

THE AUSTIN COMPANY

Industrial Engineers and Builders

Cleveland, Ohio (122)

AUSTIN STANDARD FACTORY-BUILDINGS

daylight secured by means of steel sash will be noted. The beam and girder construction produces a very rigid structure.

Fig. 6 shows one of the employes' washrooms which are provided on each floor of the new building of the Oscar Heineman Silk Throwing Mill, Chicago. The fixtures consist of solid china lavatories on cast iron standards, equipped with hot and cold water mixing faucets. Both wash and toilet room floors are of waterproof composition. Separate wash rooms are located in the open in accordance with the best practice and immediately adjoining the enclosed toilet rooms, which are equipped throughout with the most modern fixtures and finish.

Fig. 7 shows the first floor plan of the new unit for the Holeproof Hosiery Co., Milwaukee, Wis., and brings out the compact and convenient arrangement of the dye house, together with the stock room, drug room, laboratory, and drying room. Fig. 8 shows the floor plan layout on several floors in the new mill of the Holeproof Hosiery Company. Note the compact arrangement of stairways, elevator, wash rooms and air shafts at one end of the building, leaving the balance of space entirely free for the placing of machinery. These layouts illustrate a very compact and effective layout of equipment, with all machines running crosswise of the room to secure the best lighting. Trucking alleys are located at the center of each room where light is poorest, and directly under the ventilating ducts on the ceiling.

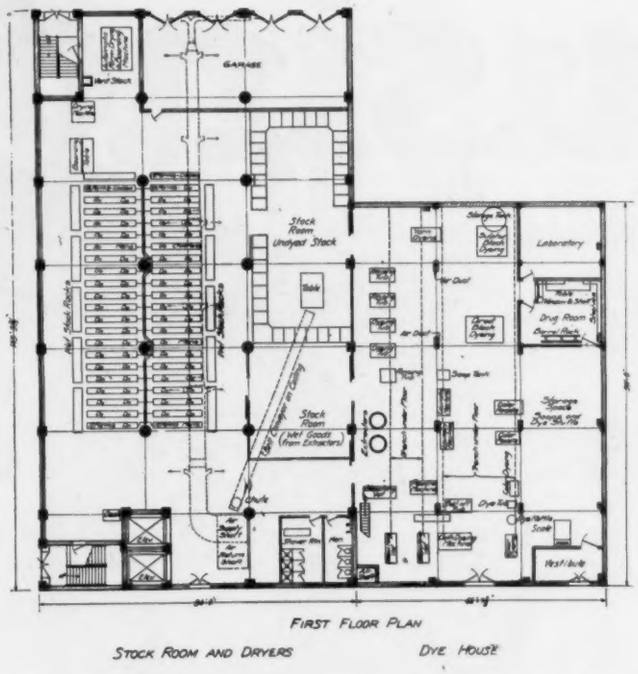


FIG. 7. FIRST FLOOR PLAN OF NEW UNIT FOR HOLEPROOF HOSIERY COMPANY

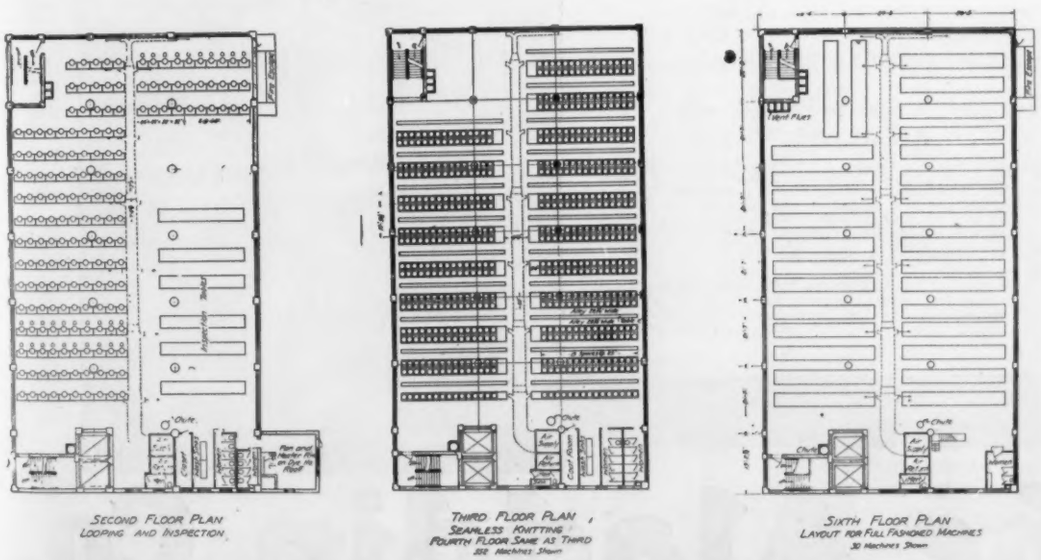


FIG. 8. FLOOR PLAN LAYOUT ON SEVERAL FLOORS OF THE NEW MILL OF HOLEPROOF HOSIERY COMPANY

Reorganization of Bleachery Power Plant

Modernized in Accordance with a Complete Logical Plan

IN many of the older textile corporations gradual changes in the methods of power generation and transmission have been in progress for the past several years. It has rarely been possible to effect a complete and radical change in these matters within a short period without some interference with the manufacturing production. The difficulties involved in the transformation have been multiplied in many cases by the more or less haphazard development of the corporation, closely reflecting the ideas of the changes in management during the past fifty years. Within the past twenty years extraordinary developments have taken place in the art of power production and transmission for industrial establishments, and it is doubtful if further radical changes are to be expected in the near future.

As illustrating the changes above referred to, the following briefly outlines recent revisions in the power plant equipment of one of the oldest and best-known finishing plants, the Lowell Bleachery, Lowell, Mass. The changes outlined are given in their sequence and cover a period of several years, but will emphasize the steps taken if the principal features of the power plant as it existed ten years ago be briefly described.

ECONOMICAL STEAM USE

The boiler plant included ten 200 H. P. Manning boilers, operating at about 80 per cent. of their rating, and at 110 pounds pressure. The evaporative performance of these boilers was excellent under the conditions. The boilers were hand-fired, with induced draft and Greene economizer. It may be mentioned at this point that some years prior to this time it was possible to operate only one-half of the manufacturing plant at one time on this battery of boilers, owing to the wasteful use of both high and low pressure steam in the processes. As evidence of the effect of efficient management, it may be stated that the entire plant is now operated on the original boiler capacity and the production of goods is double that prevailing during the period of wasteful steam use.

The engine equipment consisted of a pair of non-condensing Corliss engines, developing about 1,000 H. P., with a geared drive to jack-shaft, having a record of fifty years' continuous service. These engines exhausted into a low pressure system at a back-pressure of from 5 to 7 pounds, and the plant was mechanically driven throughout. In addition to the main engines, there were between fifteen and twenty small non-condensing engines distributed through the plant driving dryers, tenters, etc.

PRINCIPAL STEPS IN REORGANIZATION

With these main features of the plant in mind, the principal steps in the reorganization were as follows:

"1. Installation of 500 K. W. bleeder type turbine with extraction at 3 pounds gage pressure. One-half of the old engine was retained and utilized during the electrification of the mill.

"2. Electrification of the plant with group drives, completed on abandonment of remaining half of old engine. All electrification was at 60 cycle, 3 phase and 600 volts.

"3. Boiler plant was operated at two pressures during the period, five boilers at 100 pounds for the turbine, and the remaining five boilers at 80 pounds, supplying steam for manufacturing purposes.

"4. Turbine economy improved by bettering the steam conditions, made possible by the installation of a 600 H. P. water tube boiler, operating at 200 pounds gage pressure and 75° F. superheat. This boiler is equipped with a 7 retort underfeed stoker, and develops the capacity formerly carried by 5 of the Manning boilers, or about 150 per cent. of its rating. Incidental advantages of this installation were boiler room labor saving, and a reduction of the "banking" coal through the use of a large unit. This boiler was located in the original boiler room, replacing only the economizer which had finished its life and which under the conditions did not give any real economic gain. This boiler has an independent steel stack supported on setting, special bridge-wall construction, enabling ashes to be removed at rear, and an extra large capacity stoker hopper, to which coal is lifted in dumping car by a steam-hydraulic elevator. The plans for the boiler installation provide for an ultimate capacity of 4 similar units to meet the increasing steam demands of the plant. It has been possible up to this time to retain all ten of the original boilers, and during the past year five of these were equipped with special grates for utilizing the lower grades of steam sizes of anthracite.

"5. More complete provision for the use of low-pressure steam in processes, such as drying, tentering, pre-heating of kier liquor, etc.

"6. Reduction of available exhaust steam through the elimination of some of the small machine engines, and the substitution for same of variable speed mechanical or electrical drives.

"7. Installation of additional 1250 K. W. turbine unit operating non-condensing. This unit provides for the increasing power demands of the plant, and is operated either separately or in con-

Industrial Housing

QUICK SHIPMENT

A Train Load of ALADDIN Houses Per Day

Depending upon size of house, we load from one to three complete houses in each car. Normally, shipments arrive at Atlantic Coast points in about six days after leaving our mill.

QUICK RESULTS

A Gang of 120 Men Can Erect 10 ALADDIN 5-Room Houses Per Day

Aladdin Houses are Readi-Cut. Every piece of material, joists, studs, rafters, sheathing, siding, flooring, interior finish, is cut to proper size, marked and numbered and ready to nail in place.

SERVICE PLUS

Immediate Action on Any City Project—or Any Housing Problem

Our plans are drawn, prepared and finished for cities of from 300 to 3,000 population. Experienced town planners, landscape architects, engineers and builders have spent months of study and work in their production. This service becomes a part of every Aladdin Housing transaction—a single house or a complete city.

Over One Thousand ALADDIN Houses Carried in Stock

All lumber, shingles, lath, millwork, siding, flooring, interior finish, plaster, hardware, paints, nails, are carried constantly in stock, ready for instant shipment.

Hundreds of American Corporations Have Built Aladdin Houses

As many as five hundred Aladdin houses have been sold to a single corporation. Re-orders are constantly received from corporations who have tested our houses by actual purchase and erection.

A Single House—or A Complete City

The Aladdin Company will quote you a definite price on a single house or complete cities of 300, 500, 600, 1,000, 1,500 and 3,000 population. These cities are now listed in our book on Industrial Houses. Cities include homes, stores, churches, schools, muncipal buildings, water distributing systems, electric light plants and distribution, sewerage systems, trees, etc.

"Book of Aladdin Homes" No. 331 with full information, floor plans and prices will be mailed on request. Aladdin book "Industrial Housing" mailed only to inquiries written on business or official stationery.

Complete Cities

-or a Single House

The Aladdin Co.

344 ALADDIN AVENUE HOMEBUILDERS TO THE NATION TOWNBUILDERS TO THE NATION BAY CITY, MICH.

CANADIAN BRANCH—THE CANADIAN ALADDIN CO., Ltd., C. P. R. BUILDING, TORONTO, ONT.

junction with the "bleeder" machine as conditions prescribe. As evidence of the rapid progress in turbine design, it may be stated that the steam consumption of this machine at one-half load is as good as that of the bleeder machine at full load under the same steam conditions. A 100 K. W. turbine set for lighting and overtime work was also installed at this time.

"8. During the turbine installation the switchboard was enlarged and entirely modernized. It was also provided with instruments for obtaining graphical records of the output for each turbine or department. This is of great value in apportioning the power costs for the various departments, a practice which should be followed in more mills."

The various changes described have all contributed to the improvement of the efficiency of the entire plant, and exemplify the trend of progress along these lines.

SPECIAL SHRINKAGE MACHINE

During the past year an interesting development in the plant has been the construction of a special shrinking machine to handle a production of 150,000 yards per week of 2.05 yard Navy twill. The finished specifications for these goods limit the shrinkage after processing to 1.5 per cent. This machine has worked out satisfactorily, and can be used also for drying various other classes of goods that are converted by the company.

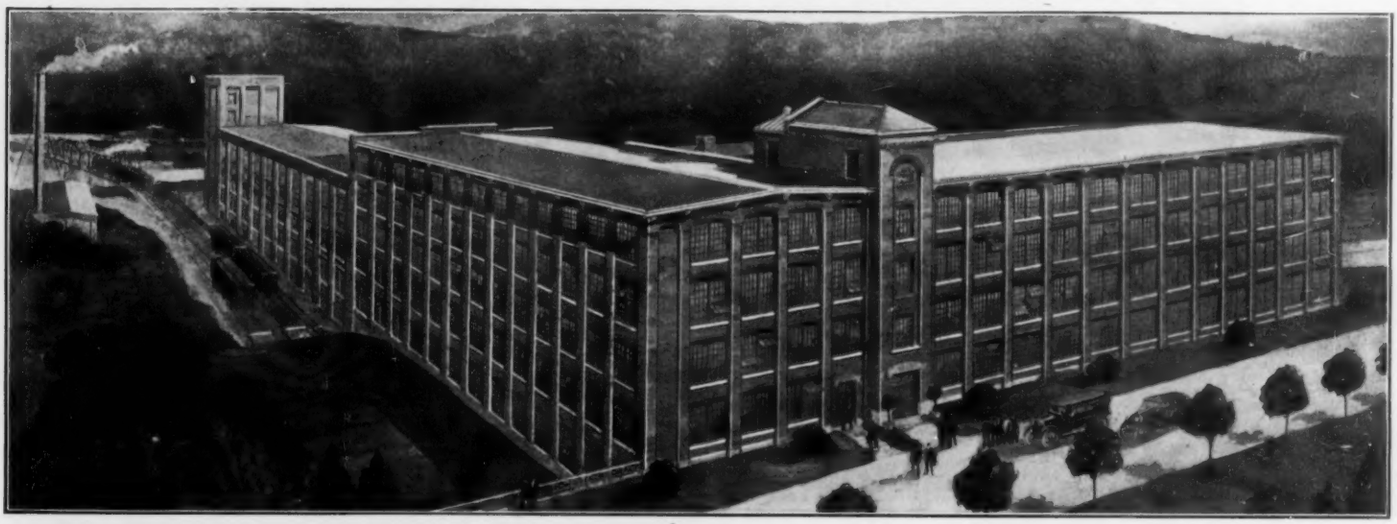
Another thing which the present management of this company has done and which is much needed in many of the older mills, has been the preparation of complete plans for the logical, ultimate expansion of the plant. Such a plan carefully worked out should be a valuable guide, and of great assistance to any succeeding management in any changes they may contemplate.

G. H. Perkins, 68 Devonshire Street, Boston, Mass., is consulting engineer for Lowell Bleachery, and the developments outlined above were carried out under his direction.

Oella Mills Rebuild Burned Plant

Three Modern Buildings Being Erected by W. J. Dickey & Sons, Inc.

ONE of the notable new woolen woven goods mills of the past year is the plant of W. J. Dickey & Sons, Inc., at Oella, Maryland, known in the trade as the Oella Mills. The company was engaged on a large army cloth contract in the winter of 1917-1918 when the old plant was destroyed by fire, with a loss of approximately half a million dollars. Plans were made at once for rebuilding and within a short time the work of clearing the ruins and putting in the foundations for a modern 10-set mill was begun. The new plant consists of three buildings and a power plant as follows: dyehouse and storage building, approximately 103 by 60 feet, 5 stories high, of reinforced concrete; main mill, 156 by 92 feet, approximately 4 stories high; finishing mill, 135 by 60 feet, 4 stories; both of mill construction; and 47 by 29 foot boiler house. In the accompanying illustration the finishing building and main mill are at the front of the photograph and the dyehouse is in the rear.



NEW PLANT OF W. J. DICKEY & SONS, INC., BUILT TO REPLACE OLD PLANT DESTROYED BY FIRE

SITE VERY IRREGULAR

The Oella Mills are located on the Patapsco River. The site is very irregular and the land slopes rapidly to the river. From the water level in the canal, which is only about one hundred feet from the river bank, to the tail water is a drop of approximately 50 feet. The plant is partly on the upper and partly on the lower level. A spur track from the Baltimore & Ohio Railroad crosses the river into the yard.

The buildings as laid out will accommodate ten sets of woolen cards and all the accompanying machinery for the manufacture of woolen goods. They consist of three buildings, one of which contains the picking, carding, spinning and weaving. The second contains all the finishing, offices and yarn storage, and the third the dye-house and general storage. They are all connected and the machinery so organized that the handling is reduced to a minimum. Finished goods are returned to the storehouse and shipped by rail.

LARGE WINDOWS AND STEEL SASH

The construction for the most part is the usual practice for plants of this kind. The main mill has a 12 foot bay and long spans requiring steel beams to provide for economical installation of the machinery. The windows are large and steel sash is used.

The finishing building is very much the same construction, but the spans are shorter and the bays only ten feet. The first floor is to be used for a wet finishing room, and is 20 feet high. This unusual height is partly due to existing grades, but is primarily to minimize trouble from steam and vapor.

The dyehouse and storage building has reinforced concrete floors and beams, with brick walls. The use of cast iron columns with this construction is an unusual feature, which was adopted to avoid large reinforced concrete columns in the dye-house.

POWER AND LIGHTING

The plant is driven by motors arranged in group and individual drives, the current for which is supplied by two 600 volt A. C. generators belted to two existing water wheels.

A boiler house with a capacity of 350 boiler horse power furnishes steam for manufacturing and heating. The heating is done with overhead coils on a vacuum system, the pump being located in the boiler house and delivering the returns to an open heater.

The lighting consists of individual lighting for the most part. Lamps are 110 volt tungsten of various sizes, equipped with steel shades, and are supplied from the 600 volt generators through transformers.

The general contractor is the Consolidated Engineering Company of Baltimore, Maryland. The plant was designed by Charles T. Main, engineer, Boston, Mass.

Belknap Mills Hydro-Electric Development

Mills Run Continuously While Construction Is in Progress

THE Belknap Mills at Laconia, N. H., own a substantial fraction of the flow of the Winnepesaukee River with a possible fall of 10 ft. This they are now redeveloping. Formerly their water wheels drove the shafting by means of belts and pulleys. The drive was an old one, and with oblique shafts, gears and quarter-turns, made an excessively large friction load. There were no head gates, the racks were in bad shape, and the canals were clogged.

The present undertaking began by straightening the approach to the fore bay up-stream, and building a new concrete retaining wall. New head gates were built in so that the whole length of the canal may be unwatered. The canal has been dredged to full depth and the side walls pointed. A six-foot steel penstock has been retained and an old wooden supplementary flume replaced by reinforced concrete flume.

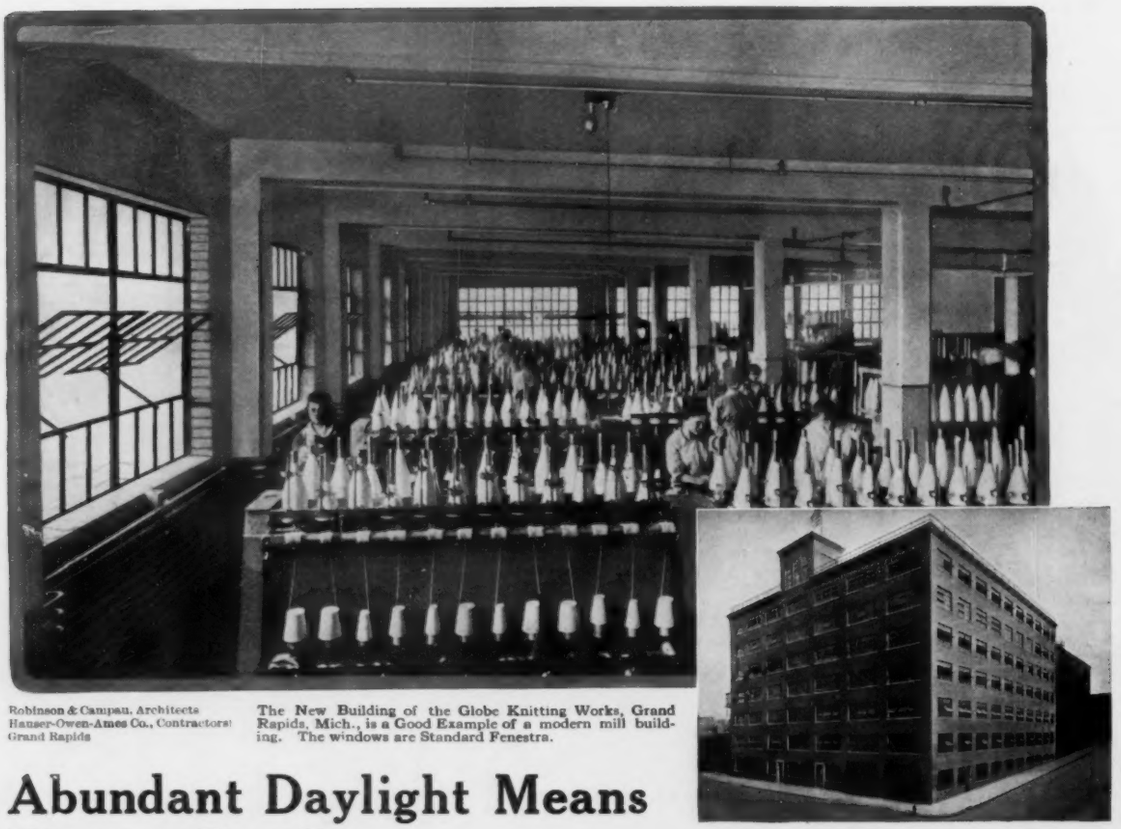
PROVISION FOR DRY SEASONS

The wheel box is then fed with an entirely adequate amount of water and the three wheels, each capable of turning up about 90 H. P., are mounted on a platform which forms the bottom of this box and discharges directly into the tail race. A short draft tube is built on the under side of the slab for each wheel, for while the wheels are set at the average height of the back water, this may drop in very dry seasons. Above, the shafts carry the usual bevel gears and drive a single, horizontal main shaft which is mounted about 3 feet above the floor. Clutches are provided so that the wheels may be cut out one at a time.

The location of this new wheel house happens to be in between two existing brick buildings so that by building a roof in between the buildings with skylights and floors, the addition of two ends made a complete building.

The governor is arranged to control either wheel as may be desired. The extension of the main shaft carries three pulleys, which are belted respectively to two generators—3 phase, 60 cycles, 440 volts, and a steam engine. There is a friction clutch which allows the engine to be thrown in and out in case of low water or other emergency.

Convenient locations are found for the exciters and the switchboard is mounted at a central point in direct line



Robinson & Campau, Architects
Hauser-Owen-Ames Co., Contractors
Grand Rapids

The New Building of the Globe Knitting Works, Grand Rapids, Mich., is a Good Example of a modern mill building. The windows are Standard Fenestra.

Abundant Daylight Means Bigger Profits

Wholesome working conditions and efficient employees have helped increase production and profits to a maximum in textile plants all over the country.

Because of this desirable result, modern plants include abundant daylight as one of the first essentials.

The Globe Knitting Works' new building, Grand Rapids, Michigan, has this essential to a superlative degree. It is equipped throughout with standard Fenestra Solid Steel Windows.

Like many other modern plants, it also includes advantages invariably present in buildings equipped with Fenestra.

1.—Fenestra Sash are a protection against fire and water, and, by providing a healthful, pleasant place in which to work, become insurance against illness, accident and waste.

2.—Fenestra Sash meet the demands of the new construction era. They make rapid rebuilding or remodeling possible. They are equally adaptable to the needs of all types and kinds of textile buildings.

3.—Fenestra Sash may be obtained in popular types to meet almost any requirements—Standard types are ready for immediate shipment.

4.—In these types and sizes Fenestra Sash cost little more than brick or concrete walls of the same area, equipped with ordinary, inflammable wooden windows. Frequently they cost less.

The new Fenestra Booklet, "Daylight Pays Dividends in Textile Mills", outlines the profit-increasing features of daylight. It is of real value to all textile mill owners and designers. A copy will be mailed on request.

Detroit Steel Products Company
2106 East Grand Blvd. Detroit, Michigan

Fenestra
SOLID STEEL WINDOWS

from the generators to the distribution in the mill.

MILL RUN DURING CONSTRUCTION

At the time of shutting down the old water wheels the engine was belted up temporarily to one of the generators and motors were erected throughout the mill using the group system of driving, thus during construction the mill ran continuously.

As is well known, Lake Winnepesaukee furnishes a very fine storage reservoir for the water powers below, although by legislative act the water cannot be drawn down indefinitely, but only to a predetermined point. This was to protect the shores in very dry times from being uncovered abnormally and chiefly in the interests of the dwellers around the lake; this has been done for many bodies of water where there are summer residents and where the water is used for manufacturing purposes. It raises an interesting question to know whether the water is worth more for pleasure or for business, there being ardent supporters on both sides of this mooted question.

It is not generally known that there is a feeder to Lake Winnepesaukee at Wolfboro which furnishes a considerable fraction of the water going down the Winnepesaukee River later on. This feeder has a considerable amount of power developed on it and in itself has a very fine storage reservoir above, hence the very fine regulation of flow into the Winnepesaukee River as compared with many others. Ample provision has been made for taking care of the ice and keeping the racks clear.

H. M. Haven and William W. Crosby, Boston, are the engineers.

Sunlight Hosiery Mills, Blackville, S. C.

Model Knitting Mill with Dyeing, Bleaching and Finishing Departments

A MODEL hosiery manufacturing plant with dyeing, bleaching and finishing departments, power plant, and modern bungalow village equipped with sewage system, water works and baths, has been built at Blackville, S. C., by the Sunlight Hosiery Mills.

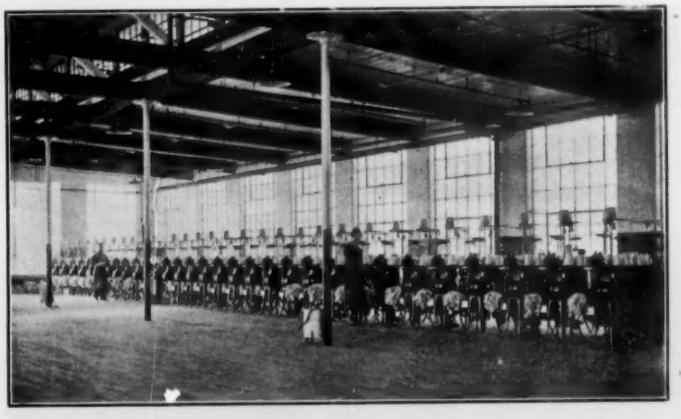
They are manufacturing at the present time 600 dozens per week of 200-needle half hose of 18s double carded yarns with 40s in the heel and toe; but expect to change to a better grade of goods as soon as possible. It is their intention to make as high grade goods as their gauge machines will permit, and to make just a little better product than the other fellow, or at least to make a product as good as the best.

Their present equipment has a capacity of 700 dozens per day, day and night run, and they expect to add to this equipment as fast as help can be trained. Their aim is 2,000 dozens per day, and they have a plant designed for that production.

TWO STORY MAIN MILL

The buildings consist of a two-story main mill, 70 feet wide by 134 feet long; a dye plant adjoining, 40 feet wide by 60 feet long, both of mill construction; and a boiler house 16 feet wide by 24 feet long. Fenestra steel sash is used throughout, and the main building is faced with pressed brick on the street front.

The plant is completely equipped with inside and outside fire protection; the water supply being provided by a 50,000-gallon steel tank in the mill yard. The main entrance to the mill is equipped with a safety fire door. A low pressure



LARGE WINDOW AREA AND STEEL SASH GIVE AMPLE DAYLIGHT IN KNITTING ROOM OF SUNLIGHT HOSIERY MILLS

vacuum steam heating system with overhead piping furnishes heat during the seasons of the year when this is required, and the rooms will be equipped with electric fans in summer.

The knitting room equipment consists at present of 60 Scott & Williams knitting machines arranged in one double row from one end of the room to the other, and thirty-one Steady Dial loopers in one single row arranged so that all operators sit in such a position that the light from the windows comes over their shoulders. The knitting machines are driven by motors and silent chain drives. The provisions for securing maximum daylight are such that only on the darkest days are artificial lights needed. Bins for holding the goods in process are placed in the center of the room, convenient to knitters, loopers and inspectors.

DYEING AND FINISHING

In the finishing department, the forming is done on 72 Paramount hosiery form dryers, mounted on three double tables. The pressing is done on the American Laundry Machinery Co.'s hosiery press, which is driven from an individual motor. The dye house equipment consists of a Rome Machinery & Foundry Company's dyeing machine for sulphur black; one 40-inch belt-driven Tolhurst hydro-extractor; one boiling kier; one concrete bleaching machine for lime bleach; one Smith, Drum gasoline singeing machine; and Vitrolite-covered tables for pairers and folders. The bleaching room has been entirely shut off from the main dye room. A concrete cistern has been constructed for storing rain water. The elevators were furnished by the Parks Mfg. Co., and are directly connected electrical elevators of 2-ton capacity.

ARTIFICIAL LIGHTING ARRANGEMENTS

For the artificial lighting of the mill a system of 200-watt "Reflecto-Cap" units has been installed. There is a total of 51 of these units in the main mill departments, and in addition 42 75-watt direct lighting units, fitted with bowl reflectors, are installed in the dye house, engine room, etc. All lighting fuses are enclosed in metal safety boxes which can be opened only by turning out the lights.

The lights are spaced approximately 20 feet apart and hung near the ceiling except over the looping table, where they are twice as numerous and swung down over and slightly behind the operators' heads, which arrangement gives as nearly perfect lighting as is possible with artificial lights, the light coming as it does from the same direction as does the daylight through the windows. All lamps are fitted with steel dome reflectors and metal cap diffusers which insure a minimum of glare.

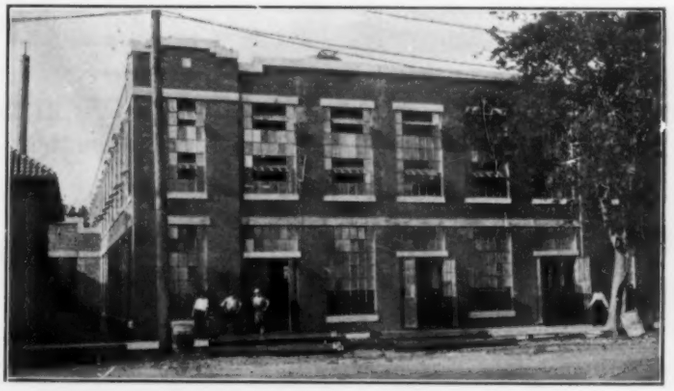
THE POWER PLANT

The mill has its own power plant, consisting of a horizontal return tubular boiler for 125 pounds steam pressure, a Ball Engine Company's horizontal simple engine, and a General Electric 60 KVA, 300 RPM, 240 volt, 60 cycle, 3 phase, direct-connected generator. Power is distributed by individual motor drive as follows: Knitting room, 20 H.P.; dye house, 15 H.P.; press room, 7 H.P.; elevator, 6 H.P.

REST ROOM FOR GIRLS

A rest room has been provided in direct conjunction with the girls' toilet and cloak room which has modern sanitary fixtures throughout, including lavatory, Red Cross first aid cabinet, etc. Furniture for the rest room has not been installed as yet, but will be a modern outfit for such a room.

Everything possible has been done for the convenience and comfort of employes, and to give a modern manufacturing unit, and the owner and manager believe they have as clean, well lighted, efficient a plant as it is possible to build at the present stage of industrial development. Every effort has been made to build and equip a mill that is a credit to Blackville and to the knitting industry. The architect and engineer was J. E. Sirrine, Greenville, S. C. J. M. Farrell is the owner and E. E. Partain is manager.



FRONT VIEW OF NEW SUNLIGHT HOSIERY MILLS, BLACKVILLE, S. C.

Mandeville Mills, Carrollton, Ga.

Building Additions to Plant and Improving Village Property

ENLARGEMENTS and improvements at the Mandeville Mills, Carrollton, Georgia, large manufacturers of cotton yarns, consist of the construction of an extension to No. 1 Mill, a new cloth room and conditioning building at No. 2 Mill, and a general plan of extending and improving the village property.

The extension to the No. 1 Mill is 109 feet long by 129 feet 2 inches wide, and two stories high. The picker room was extended 35 feet wide by 25 feet, 6 inches long. The area of the warehouse system of No. 1 Mill was also enlarged.

ADD NEW YARN MACHINERY

The mill building is a standard mill constructed building, equipped with steel sash and cast iron columns. In the extension they are planning to add 4,896 spindles with a full complement of preparatory machinery. They are also adding 3,840 twister spindles.

CLOTH ROOM, CONDITIONING BUILDING

The cloth room and conditioning building is a two story combination reinforced concrete, mill constructed building, 80 feet wide by 110 feet long. This building has steel windows and reinforced concrete floors, with a mill constructed roof. All of the additions are completely equipped with automatic fire protection, etc.

ELECTRIC POWER PURCHASED

Mill No. 1 is electrically driven by purchased power, which is to be delivered at approximately 40,000 volts and stepped down to 575 volts, 3 phase, 60 cycles. A sub-station building near the

NEW ENGLAND CONCRETE CONSTRUCTION COMPANY
ENGINEERS AND CONTRACTORS
BOSTON

MILLS WAREHOUSES POWER PLANTS FACTORIES
FIREPROOF SLOW BURNING

YOU CAN BUY CHEAPER BUILDINGS THAN OURS BUT NONE BETTER

THAT'S WHY OUR CLIENTS ALWAYS COME BACK

The story of one of our reconstruction jobs has been written by an independent authority. A post-card will bring you a copy.

mill houses the transformers and switchboard for the mill power and village lighting distribution circuits.

The spinning and twister frames are driven by four frame motors, the pickers by individual motors, and the other machinery by moderate size group motors. All electrical apparatus is of General Electric Company's manufacture. J. M. Clayton, of Atlanta, is installing the electrical equipment and wiring for power and lights.

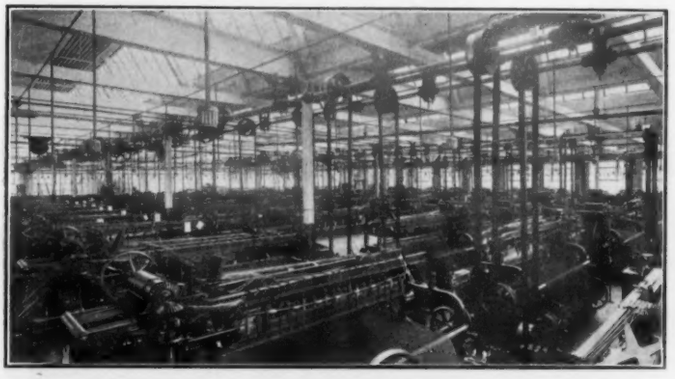
As in the case of many other Southern cotton manufacturing concerns, the company has graded and opened new streets according to a general plan for improvement and extensive utilization of the village property. Plans for a civic center and parkway, occupying vacant land in the center of the village will tie in two sections of the village and develop an attractive area for the recreative use of the employes. J. E. Sirrine, Greenville, South Carolina, is the architect and engineer for the various additions and betterments.

Virginia Woolen Co., Winchester, Va.

Modern New Weave Shed and Finishing Building Erected

CONSTRUCTION work was recently completed on a new sawtooth roof weave shed, one story and basement, for the Virginia Woolen Co., Winchester, Va. The first floor provides space for 120 looms, and the basement is utilized for wet and dry finishing. The construction is of brick, with steel frames and large window area, which provides excellent light for machines in every part of the rooms.

The building was erected to take care of the growing demands of the company's rapidly increasing business, and to improve its working conditions. The most notable feature perhaps is the excellent lighting as shown by the accompanying photograph. This has resulted in increased production over the old standards.



VIEW IN WEAVE ROOM OF VIRGINIA WOOLEN COMPANY'S NEW MILL

The design is of the usual sawtooth construction with brick walls and steel frame. The side walls are filled with steel sash of ample proportions, one side being glazed with wire-glass. Adequate fire protection is given by a sprinkler system.

The power is electric and is supplied through conduit to inverted suspended motors driving groups of machines. The weave room floor has been made practically noiseless so that the operation of the looms is unobjectionable to those working in the finishing department in the basement.

DAYLIGHT THE FEATURE

It was recognized that daylight is of the first importance in industrial buildings; that the well-lighted workroom insures greater accuracy, less waste, fewer accidents and better health; also that the saving in light bills is a worthwhile item. Accordingly the architect and the mill owners worked out a plan by which this feature was made paramount. The Truscon steel windows, shown in the illustrations, are characterized by trim, clean cut lines and flat surfaces, and supply daylight and fresh air in ample measure. They combine attractive appearance and exceptional strength.

The officers of the Virginia Woolen Co. are T. B. Patton, president; Shirley Corter, secretary and treasurer; H. B. McCormac, manager. The selling agents are: Terhune, Yereance & Wolff, 215 Fourth avenue, New York. P. O. Kielholtz, Continental Building, Baltimore, was the architect-engineer for the new building.

Gloversville Knitting Co., Gloversville, N. Y.

New Spininng Mill and Storehouse Will Double Present Output

THE Gloversville Knitting Company is just completing the erection of a new spinning mill and a storehouse. These buildings have concrete foundations, brick walls, steel sash, hard pine beams, plank floors, with maple top floors and plank roofs. The spinning mill is connected to the present No. 2 mill by a bridge over the street. The company is believed to be the largest exclusive manufacturer of Scotch gloves in the United States, specializing on this class of work.

NEW WEAVE SHED OF VIRGINIA WOOLEN CO.; FINISHING DEPARTMENT IN BASEMENT

The spinning mill is a two story building, 172 ft. long and 69 ft. wide, having a 10 ft. basement under a part of the building. It will be used exclusively for yarn manufacturing and will practically double the present output. Large window openings, together with the 14 ft. height of stories, permit a good distribution of light in the mill. Toilet facilities are provided on each floor. The building has a stair tower at each end.

The storehouse, 150 ft. by 45 ft., is also a two story building, the first floor of which rests on low piers. The story height is 10 ft. A platform running the entire length of the building is served by a spur track from the Gloversville, Johnstown & Fonda Electric Railroad.

Both of these buildings will have a system of automatic sprinklers. The spinning mill will be heated by overhead pipe coils, on a vacuum return system. It has been designed to accommodate picking in the basement, picking and carding on the first floor, and spinning, twisting and winding on the second floor.

ADD TEN SETS OF CARDS

They will install ten sets of Davis & Furber cards, 60 x 60, of the latest type, also twelve Davis & Furber mules, 288 spindles, 2¼ gauge. The wool conditioning machinery will consist of bur pickers, Fearnaught mixing picker and cone duster. They will make yarn ranging in size from 6 to 30 cut, especially adapted for Scotch gloves.

The most improved system of electric lighting is being installed, and the mill is equipped with an electric elevator and other modern appliances to conserve man power. The sprinkler system is being installed by the General Fire Extinguisher Co. of Providence, R. I., and the heating by H. J. Brandeles Co., of Utica, N. Y. The entire electric equipment is being installed by their own electrician, who has made a specialty of electric installation for textile plants.

The fire equipment includes Allis-Chalmers direct connected motor, driven 1,000 gallons per minute, fire pump connected with 8 in. underground fire mains constructed in accordance with the plans furnished by the fire insurance company that handles all of the concern's insurance matters.

TROLLEY SYSTEM FOR WAREHOUSE

The warehouse is located on private siding of the F. J. & G. R. R., a branch of the N. Y. C. R. R., and is equipped with a Richards & Wilcox trolley system, whereby one man is able to convey and handle any size bale to any part of the building in a very rapid manner. By means of this equipment one man will do the work that formerly required five or six men in their warehouse.

The wool conditioning department is located in the basement of the mill, and is equipped with blowers to transfer

PLANT OF GLOVERSVILLE (N. Y.) KNITTING CO.; NEW SPINNING MILL AND STOREHOUSE AT LEFT

Are You Going to Build?

Modern up-to-date textile mills are built of reinforced concrete — fireproof — vermin proof — large glass area—well ventilated interiors—smooth ceilings —low insurance rates. Their cost is little, if any, in excess of that of old-style, dark, fire-inviting mill construction.

It is upon reinforced concrete construction and reinforcing materials that the Corrugated Bar Company has been devoting its efforts exclusively for the past twenty-seven years.

During this period its Research Department has brought forth a number of entirely new and extremely economical forms of construction and of reinforcing materials.

They have not been content with that, however, but have made an exhaustive study of every new form of reinforced concrete construction or reinforcing material brought out by others during the past quarter-century.

The result of this unique, invaluable experience and research is expressed in the ENGINEERING SERVICE DEPARTMENT, which works in close harmony with owners, architects, and mill engineers.

This Department prepares detailed plans and specifications, furnishes preliminary and comparative sketches, estimates, and cost data. Its unusually broad experience makes it well qualified to assist in the selection of the type of construction best suited to the purpose of the building.

The Engineering Service of this company can be concentrated through any of the many engineering offices listed.

Inquiries are invited from owners, architects, mill engineers, and other interested persons.

ENGINEERING SERVICE DEPARTMENT

Corrugated Bar Company

MUTUAL LIFE BUILDING Buffalo, N. Y.

BOSTON NEW YORK SYRACUSE PHILADELPHIA
DETROIT ST. PAUL ST. LOUIS CHICAGO
ATLANTA HOUSTON KANSAS CITY

Corrugated Bars
CORR-PLATE-FLOORS
CORR-MESH

the stock into bins directly back of the Bramwell feeders on the cards, which saves the work of extra men.

The electric transformers are housed in a part of the pump house, and the transmission wires are run in conduits underground. By this means they avoid disfiguring the grounds with ungainly poles and transformer works perched high in the air.

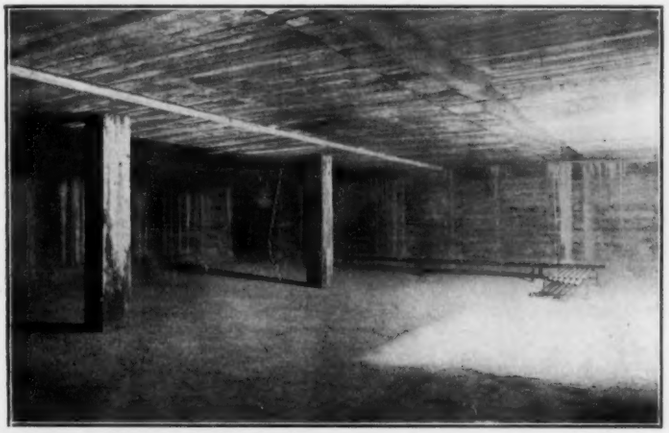
This plant was designed by Charles T. Main, engineer, Boston, Mass.

Springdale Finishing Co., Canton, Mass.

Build New Power House and Increase Fuel Oil Storage Capacity

THE most important among the many improvements made at the plant of the Springdale Finishing Company, at Canton, Mass., during 1918 by the Aberthaw Construction Company, Boston, was the erection of a new power house and equipment for fuel oil storage. The former is a one story structure with basement and measures 45 x 50 feet in plan, with brick walls and concrete floors, and heavy plank roof supported on steel trusses with a large monitor over the engines which gives perfect lighting.

Although the Springdale Company already had storage capacity for fifty thousand gallons in two steel tanks buried in the ground, the conditions of fuel oil shortage and transportation necessitated additional storage facilities. These were provided in the form of a concrete tank of 110,000 gallons capacity, into which the oil will be discharged from the cars and from which it will flow into the old steel tanks and thence be drawn to the boiler house.



INTERIOR OF FUEL OIL TANK AT SPRINGDALE FINISHING CO.

The unique feature of the tank, which is 45 feet square and approximately 8 feet 4 inches deep, is the unusual roof construction which had to be designed to carry a load of 16 inches of earth with which it is covered. A steam coil is provided in the bottom of the tank to heat the oil as it is drawn out.

FUEL OIL TANK AT SPRINGDALE FINISHING COMPANY

The Aberthaw Construction Company designed all the concrete work in connection with this development and also constructed a building 30 x 100 feet of wood frame and corrugated iron construction for experimental dyeing purposes.

The power equipment consists of two Rice and Sargent cross compound Corliss engines of 250 and 150 k.w. capacity. These will furnish all the electric power required by the plant.

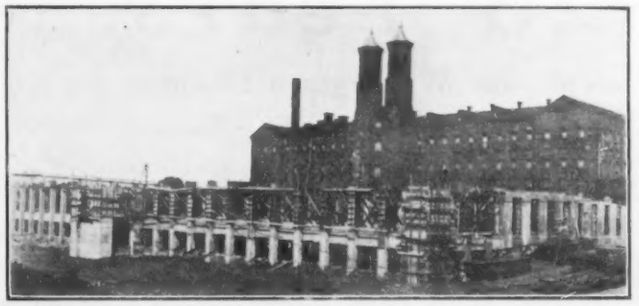
The power house is connected to the boiler house by a 16 foot space, the width of the power house, in which is located the pump and heater room and toilet room in the basement, and on the first floor a storeroom and the chief engineer's office.

Indiana Cotton Mills, Cannelton, Indiana

New Concrete Weave Shed —Locker and Rest Rooms

THERE is under construction at the Indiana Cotton Mills, Cannelton, Ind., a modern new weave shed, one story and basement, with large window area, which will be completed about March 1, 1919. It is to be equipped with 450 Stafford 40-inch automatic looms for weaving sheetings and drills, and when this machinery is set up, locker and rest rooms will be provided in the basement of the present building.

The new weave shed is 132 feet wide by 272 feet, 2 inches long, with a basement and first story. It is a combination reinforced concrete side wall, with mill constructed floors and roof. The doors and sash throughout the building are Fenestra Steel sash, giving the building a maximum of light and ventilation. All of the columns in the building are of cast iron, made by the American Cast Iron & Foundry Co., of Birmingham, Ala.



NEW WEAVE SHED OF INDIANA COTTON MILLS, CANNELTON, IND. LOCKER AND REST ROOMS TO BE FITTED UP IN OLD BUILDING WHEN NEW MILL IS COMPLETED

The building is equipped throughout with automatic sprinklers and outside hydrant protection. The heating system is a low pressure vacuum system. The humidifier installation is the American Moistening Company's equipment, with automatic regulation.

The building is designed to house four hundred and fifty 40-inch automatic looms, all of which will be driven from below, and will be modern throughout and equipped with best materials in every particular. The basement will be used principally as a belt area, and as storage space for heavy supplies.

The new looms will take the place of 500 36-inch plain looms. They are also adding six Saco-Lowell cards, two slubbers, and four fly frames, the latter from the Woonsocket Machine & Press Co. All weaving will be done in the new building, which will allow them to rearrange their preparatory and spinning equipment. The basement of the present mill, which is 60 feet by 228 feet, will be used as storage and will also enable them to put in a locker and rest room, and probably a lunch room. Their idea in putting in locker, rest and lunch rooms, is to keep pace with the times, and provide the most favorable possible facilities for our operatives.

This new addition and equipment was decided on last spring, and while it was made primarily on account of the war conditions, they also figured that it would be extremely advisable to have the most modern up to date equipment possible when the old peace time competitive conditions under a low tariff return.

Oscar Fenley is president of the Indiana Cotton Mills, Lee Rodman is vice-president and treasurer, and George P. Smith is superintendent. J. E. Sirrine, Greenville, S. C. is the architect and engineer for the new weave shed.

Federal Penitentiary, Atlanta, Ga.

Duck Weaving Mill Built to Supply Government Needs

IN September, 1916, Congress appointed a commission to report on the advisability of starting some kind of mercantile work in the several Federal penitentiaries, to give employment to the inmates.

The Commission recommended the construction of a mail bag factory and a textile mill at the Atlanta Penitentiary and submitted an estimate of the cost of same. Later, it was decided to change the original plan somewhat and build a duck weaving plant, to supply the Government needs in a normal year. This called for a plant to turn out thirty-four different kinds of duck with a yearly production of 6,317,000 yards.

In September, 1917, Lockwood, Greene & Co. were chosen as engineers and plans were worked out for a reinforced concrete building, one story in height, with a sawtooth roof, and a small basement under one end, the outside measurements being 457 feet long by 210 feet wide. The whole frame of the building, together with the floors and roof slab, are reinforced concrete. Red brick panel walls fill in the space between the outside columns, and in these walls, as well as in the sawtooth monitors, are placed steel sash glazed with wired glass.

CONSTRUCTION DONE BY INMATES

All construction work was done by the inmates. Although few of the men were accustomed to this kind of work, yet the finish on the work is way above the average. No one man would do a great amount, but great care was taken with detail and finish.

The building was completed in the early fall of this year.

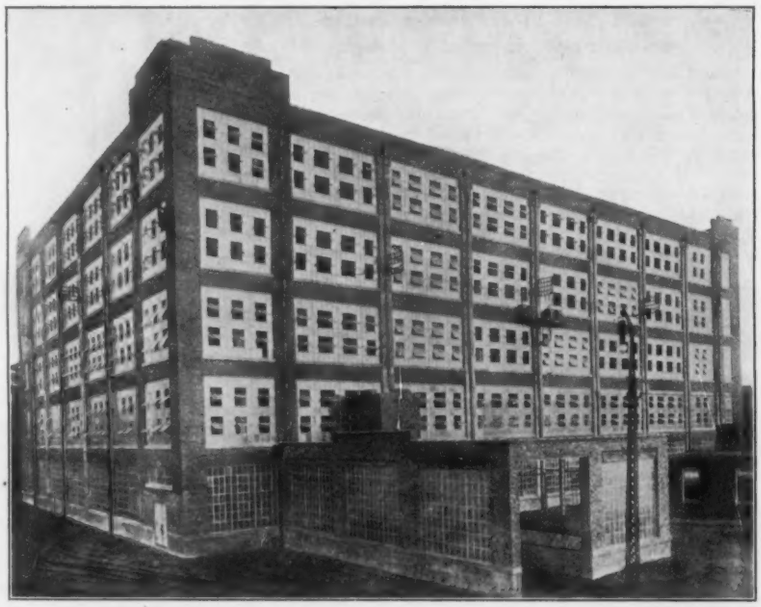
FEDERAL PENITENTIARY, ATLANTA, GA.; NEW DUCK WEAVING MILL IN FOREGROUND

Building Textile Mills for Over 25 Years

The John W. Ferguson Co. have given the kind of building Service that their clients have appreciated. That is why repeat orders represent the largest part of their business.

Hardly a month passes but that this organization is called upon to erect a new building for an old client.

Our service will interest you
Write for details



JOHN W. FERGUSON CO., *Engineers and Contractors*

253 Broadway, New York — Established 1892 — 152 Market St., Paterson, N. J.

65-76

THEY SOLVED ONLY HALF THE PROBLEM

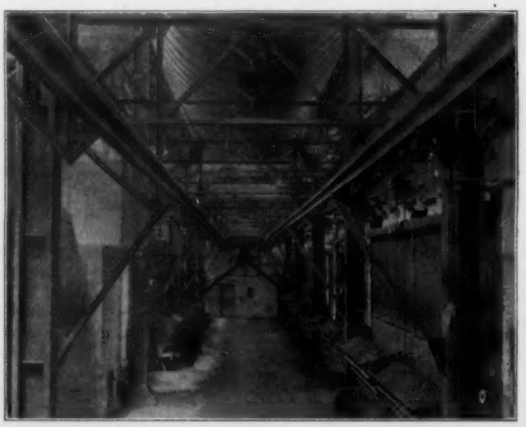
The *Problem* Was to Eliminate the Need of *Man Power* in the Boiler Plant
The *British Government* Used *Woman Power*—Thus Solving the Problem in Part
The *American* Method Is to *Eliminate All Hand Power*

British Solution

Girl worker feeding coal to a stoker in a British munitions plant during the War.

OUR SHARE OF WORLD TRADE WILL DEPEND UPON COST OF MANUFACTURE.

American Practice



Dan River Cotton Mills, Danville, Va.
Lockwood, Greene & Co., Engineers

Let *gravity* feed your boilers as we did at this plant, also at

Massachusetts Cotton Mills - - - - - - - - - Lowell, Mass.
Wanskuck Mills - - - - - - - - - - Providence, R. I.

and many others, including seven plants for the United States Government

Our Engineers Will Furnish Suggestions

GUARANTEE CONSTRUCTION CO., 90 West St., N. Y.

Everything was planned to make this an ideal plant and one above criticism. Conduits were buried in the concrete for wires and proper arrangements made for sprinklers, etc. The central plant system was adopted for heating, ventilating and humidifying. Large underground ducts were built to distribute the air from the blower rooms.

The toilet facilities are ample and arranged in the most modern manner, and this mill will be one of the best in the South in many particulars. The power to operate this plant is to be purchased in the form of electricity. Nearly all of the machines will be run by individual motors, either geared direct or by chain drive. Some few will be group driven. The main boiler house of the penitentiary will furnish the necessary steam for heating purposes. The plant is not in operation as yet, but is expected to begin production early in the year.

Winnsboro (S. C.) Mills Reorganize Plant

Erect New Buildings and Lay Out New Mill Village

THIS plant was purchased by the present owners in 1916, and consisted of a three-story main mill, two-story weave building, boiler-engine house, etc., together with a village of low grade houses, located close to the mill and on low land.

In order to increase the capacity of the plant to 3,000,000 lb. of tire fabric per year, it was found necessary to make a complete reorganization of the old mill and its machinery, so that the plant today, as designed by Lockwood, Greene & Co., engineers, is practically a new productive unit.

NEW VILLAGE LAID OUT

A new village was laid out on high land some distance from the mill with streets, sidewalks, etc. Such of the old houses that could be, were moved to new positions and new houses, together with community buildings, were erected. An entire new drinking water system, together with new drainage system, was installed and what was once considered an unhealthy mill village was made one of the most healthy in the south.

MORE SPACE FOR TWISTING

The mill manufactures the fabric that is used in the manufacture of automobile tires. Products of this character require a good deal of twisting and therefore it was found that considerable more floor space was required for machinery. A three-story extension was therefore built at the end of the original mill, and a three-story picker building, with storehouse attached, was built in the rear of the plant. A new one-story weaving building was constructed between the mill extension and picker building.

The original mill building was 75 ft. by 355 ft., with three stories for half the length and two stories for the remainder. The new extension is 103 ft. wide and 366 ft. long, three stories high. The end wall of the older building was removed, so that the mill now functions as one great building, over 700 ft. long. In this structure all the manufacturing processes from carding to beam warping is carried on.

Many of the old machines that were in good condition were retained for further service, and other machines were rebuilt, while those in a bad condition were scrapped. The layout of the departments and machinery is such that a large increase in production can be made.

DETAILS OF BUILDINGS

The new weave shed is a structure 101 ft. by 180 ft., placed at right angles to, and at the end of the mill so as to form a continuous operating unit. This building is now one-story high with a monitor roof, but has been designed to be eventually three stories. It is equipped throughout with 60-in. extra heavy looms of Crompton & Knowles make.

The picker building, built adjoining the weave shed, and parallel to the mill, is three stories high, 81 ft. by 118 ft., with the opening and picking operations carried on in the second and third stories. The dust room occupies half the first story, with the cloth and waste shipping rooms in the other part. Very little storage space is required for cloth, as manufactured goods are shipped as fast as carloads are made up.

ILLUMINATED CLOCK TOWER, A FEATURE OF NEW BUILDING OF WINNSBORO MILLS

The storehouse, an extension of the picker building, has four stories and a basement and is 162 ft. in length. A sample room, fitted up with large plate glass windows, is located on the upper story.

HEATING, VENTILATING, HUMIDIFYING

The question of heat and ventilation received considerable attention. It was finally decided to install a central heating, ventilating and humidifying system. Four fans capable of supplying 600,000 cu. ft. of air per minute were installed in houses located outside of the main mill building. Underground ducts, connected to vertical brick ducts and galvanized flues beyond these, distributed the air to all parts of the building. On account of the heat generated by the twisters, it was found that this department would have to be cooled even when the outside thermometer registered zero. Automatic control for temperature and humidity are placed throughout the plant. The wisdom of installing a plant of this kind was proven during the past summer, when it would have been impossible to have kept the plant in operation without some such system.

Power to operate this plant is purchased from an electric company, which delivers it at a high voltage, which is transformed to the proper voltage to run the plant.

LOCKERS AND CONVENIENCES

Everything that could be done to make this a perfect plant, within reasonable expense, was done. Lockers are provided for the employes, the toilet facilities are of the best, drinking water distributed throughout the plant is pure and cold. Space has been provided for rest rooms, etc.

In order to improve the looks of the property from the outside, and also to give the village correct time, a tall feature clock tower was erected at the end of the mill extension. A clock with four illuminated faces in this tower acts as a master clock for an entire system of secondary clocks throughout the plant and also serves the entire village by day and night.

GENERAL VIEW OF WINNSBORO MILLS AND VILLAGE—NEW MAIN MILL AT RIGHT; NEW STOREHOUSE AND PICKER BUILDING AT LEFT; WEAVE SHED IN FOREGROUND

BUILDING WITH FORESIGHT
No. 5 MILL OF THE PACOLET MFG. CO.
Narrow Sheetings and Drills
PACOLET, S. C.
This mill was designed to take the place of two mills destroyed by flood in 1903. An interesting problem was involved—how to take practical advantage of dam and foundations and general location as left by the flood, and yet build a mill which would be proof against a similar disaster. This was successfully accomplished—a fact proved a few years later, when a flood of even greater magnitude than that of 1903 swept the river and Pacolet No. 5 Mill escaped without damage.
LOCKWOOD GREENE

—before building or rebuilding your plant, get this book

Nobody knows better than you the importance of carefully planning the project you have in mind—the need for analyzing the situation correctly, and building a plant in which every possibility has been foreseen and met.

The experience of Lockwood, Greene & Co. as engineers dates back to 1832. The experience has built a broad knowledge, not only of technical, but also commercial, financial and business conditions. To plan the undertaking, design the plant, lay out the machinery and equipment and superintend the construction, are steps in the service rendered by Lockwood, Greene & Co.

The book "Building With Foresight," explains this service and illustrates it by examples. The head of every industrial house will find this book of value. A request for it on your business letterhead will be honored at once.

LOCKWOOD, GREENE & CO.
ENGINEERS

BOSTON, 60 FEDERAL STREET - CHICAGO, 38 S. DEARBORN STREET
ATLANTA, HEALEY BUILDING - - NEW YORK, 101 PARK AVENUE
LOCKWOOD, GREENE & CO. OF CANADA, LTD., MONTREAL, P. Q.

RELIABILITY EFFICIENCY EXPERIENCE 1895

Lord Electric Co.
Incorporated 1895

CONSTRUCTING ENGINEERS

$500,000 CAPITAL
Backs Our Service

Electrical equipment, apparatus and construction work, designed and installed.

Write or phone nearest office

BOSTON NEW YORK BALTIMORE
PROVIDENCE WASHINGTON

BUILD NOW

Because 1. Building materials are becoming increasingly difficult to secure and the prices are steadily advancing.

2. So many skilled workmen have been absorbed by our Nation's war activities that any one who foresees the need of increased floor space in the near future ought to take immediate action before the ever expanding National requirements diminish the supply still more.

When you have decided to build, choose a responsible builder with a more than local field. Do not be influenced wholly by a low bid.

CASPER RANGER CONSTRUCTION CO.
THE COMPLETE BUILDING CONTRACTORS
MAIN OFFICE: HOLYOKE, MASS.

BRANCH OFFICES
101 Park Avenue, New York, N. Y.
293 Bridge Street, Springfield, Mass.

Concrete Buildings Under Construction

Additions for American Woolen Co. and Nashua Manufacturing Co.

By *J. P. H. Perry* *

AT the present time, there are several interesting reinforced concrete buildings under way, or about to be started, for the textile industry. Among them are two buildings actively under way for the American Woolen Company, and one just being started for the same concern. The Nashua Manufacturing Co. is having a large dyehouse built at Nashua.

The work for the American Woolen Company consists of a warehouse as an addition to Washington Mills No. 10, at Lawrence and a combination store house and machinery exchange known as the American Waste Exchange, at Medford. Both of these jobs are well under way. There is also a picker building and storehouse as an addition to the Puritan Mills, at Plymouth, which is just being started.

WASHINGTON MILLS WAREHOUSE

The Washington Mills job of the American Woolen Company is located on the block bounded by Canal, Jackson and Methuen streets. The building is 155 x 170 feet and is to be ten stories in height. The typical interior bay is 17 feet square, and the story heights 12 feet 6 inches, all stories. The floors are the flat slab type of concrete construction and are designed for live loads of 200 pounds per square foot. This makes a floor 7½ inches thick, on top of which is placed a 1 inch granolithic finish. The typical interior column in the first story is 2 feet 8 inches in diameter, all interior columns being round. The top story columns are 16 inches in diameter.

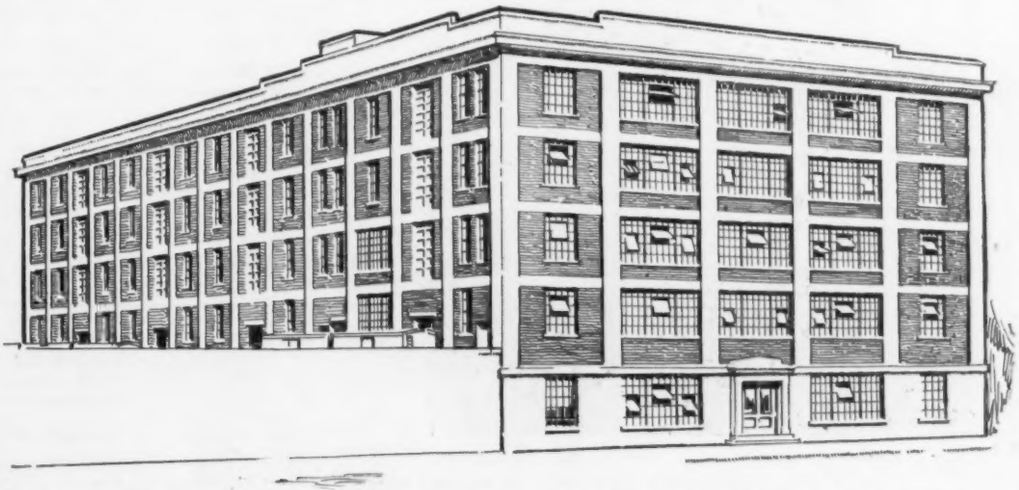
* Contract manager, Turner Construction Co.

The exterior appearance of the building is shown in the accompanying drawing. The curtain walls are of 8 inches Fisklock brick. The walls are carried very high so as to give a narrow window; this with the idea of reducing the fire hazard from conflagration exposure, and also to permit of the storing of wool against the walls without damaging the windows if they were as normally built.

The shipping facilities of this new warehouse consist of a railroad siding with a shipping platform on the Canal street side of the building. Materials from this shipping platform will be handled by means of two lines of whip hoists on the outside of the building in addition to two elevators on the inside of the building. On the Jackson street side there is an entrance by which trucks can back up to the elevator for loading or unloading. In addition, there are two lines of exterior whip hoists.

The storage capacity is 2,933,235 cu. ft. The building is to be equipped with two electric elevators of the Otis operatorless micro-leveling type, and is to have complete sprinkler protection.

At the present time the sixth floor is being concreted on this building. The contractor is the Turner Construction Co. of New York. The plans were prepared by W. B. Knowlton, chief engineer of the American Woolen Co.



NEW BUILDING FOR AMERICAN WASTE EXCHANGE OF THE AMERICAN WOOLEN COMPANY AT MEDFORD, MASS. IT IS TO BE 281 X 99 FEET, FOUR STORIES AND BASEMENT. FLOORS DESIGNED FOR LIVE LOADS OF 200 POUNDS PER SQUARE FOOT.

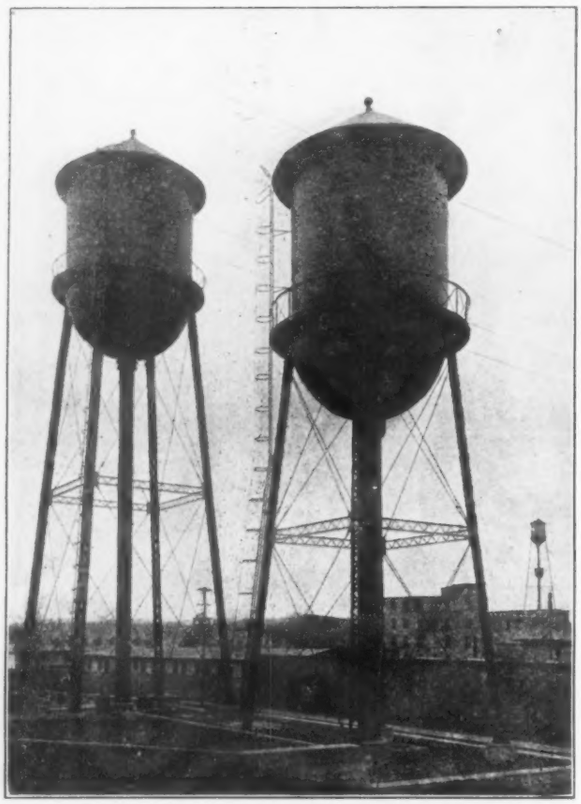
REINFORCED CONCRETE WAREHOUSE BEING BUILT AS AN ADDITION TO THE WASHINGTON MILLS OF THE AMERICAN WOOLEN COMPANY AT LAWRENCE, MASS. IT IS 155 x 170 FEET AND IS TO BE TEN STORIES IN HEIGHT. DESIGNED FOR LIVE LOADS OF 200 POUNDS PER SQUARE FOOT.

AMERICAN WASTE EXCHANGE

The new building for the American Waste Exchange, at Medford, Mass, is to be 281 ft. x 99 ft., 4 stories and basement. The typical interior bay is 18 ft. 6 in., and 19 ft., and the story heights are as follows: Basement, 12 ft. 11 in.; 1st story, 15 ft. 11 in.; 2nd story and 3rd story, 13 ft.; 4th story, 16 ft. 6 in.

The floors are of the flat slab type designed for live loads of 200 pounds per square foot, resulting in a structural slab of 8 in. in thickness on which a 1 in. granolithic finish, treated with floor hardener is to be placed. The typical interior column in the basement is 2 ft. 4 in. in diameter.

On this building also the exterior walls are of 8 in. Fisklock brick. The windows are of rolled steel sash, glazed with double thick American glass. Except where there is a fire hazard exposure in this instance, the glass is ¼ in. rough wire. There is a railroad siding and shipping platform on the east side of the building; all materials received or shipped from this siding being handled by four whip hoists and one elevator. On the west side of the building there is a small shipping platform for truck shipments and one ele-



Looking at tank on left hand: Sanford Mills, Sanford, Me. Capacity, 30,000 gallons. Height, 54' 10" top.
Tank at right, in foreground, as follows: Sanford Mills, Sanford, Me. Capacity, 50,000 gallons. Height, 76' 9" top.
High tank in background: Goodall Worsted Co., Sanford, Me. Sprinkler tank capacity, 50,000 gallons. Service tank, capacity, 10,000 gallons. Height, 159' 0" top.

We Specialize in building

Steel Water Tanks

For

FIRE PROTECTION

Steel tanks do not rot, burn or burst.

Steel tanks always remain absolutely water-tight.

Our hemispherical bottom steel tanks have been the choice of all practical builders for years.

Anyone interested in work of this character will appreciate a copy of our catalogue No. 37, which will be mailed to any address upon request.

We will be pleased to furnish plans, specifications and estimates on any size outfit erected at any location.

CHICAGO BRIDGE & IRON WORKS

PLANTS

EASTERN—Greenville, Pa. (Pittsburgh District)
CENTRAL—Chicago, Illinois
CANADIAN—Bridgeburg, Ontario

SALES OFFICES

Chicago, Ill.: 105th & Throop Sts.
New York, N. Y.: 3125 Hudson Term.
Dallas, Tex.: 1628 Praetorian Bldg.
San Francisco, Cal.: Call Bldg.
Seattle, Wash.: L. C. Smith Bldg.
Jacksonville, Fla.: 805 Fla. Life Bldg.
Los Angeles, Cal.: Union Oil Bldg.
Charlotte, N. C.: 509 Realty Bldg.
Detroit, Mich.: Ford Bldg.
Greenville, Pa.: 129 Pine St.
Bridgeburg, Ontario, Can.: 135 Janet St.

LIMESTONE WOOD SPLIT PULLEYS

We specialize on prompt shipments of quantities of one size for textile mills.

The next time you need a considerable number of pulleys *quick*, wire us the order and see what we can do. Of course, we make all sizes up to 30 feet, and

Every Limestone Pulley is Guaranteed

Agents everywhere with stocks of standard sizes. Write us for the name of the one nearest you.

THE OHIO VALLEY PULLEY WORKS, Inc.

(Nothing But Pulleys for 32 Years)

MAYSVILLE, KY., U. S. A.

vator which serves the shipping platform. The building has a storage capacity of 1,414,000 cu. ft.

The portion to be used as machinery exchange is about 24,000 sq. ft. The building is to be equipped with sprinklers throughout. The contract has been let to the Turner Construction Company of New York in accordance with plans prepared by W. B. Knowlton, chief engineer of the American Woolen Co.

PURITAN MILLS PICKER HOUSE

The Puritan Mills picker house for the American Woolen Co. is a 4-story building 102 x 50 ft., of reinforced concrete throughout except for Fisklock brick curtain walls. Work on this building will be started early in January. The contract has been let to the Turner Construction Co. of New York, in accordance with plans prepared by W. B. Knowlton, chief engineer of the American Woolen Co.

NASHUA MANUFACTURING CO. DYEHOUSE

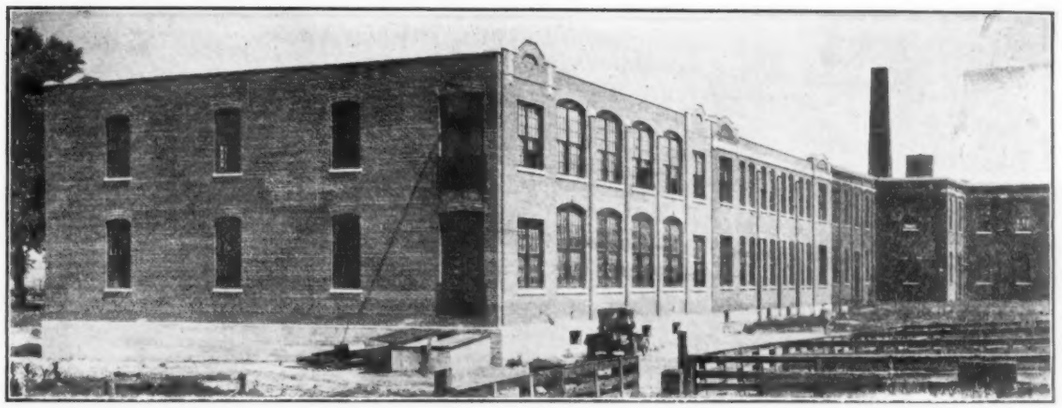
The Nashua Manufacturing Co. dyehouse is an extension to the dyehouse No. 1 and is to be 214 ft. x 78 ft., 4 stories high with a basement. The interior bays are 20 ft. x 24 ft. and the live load for all floors is 150 pounds per square foot, which results in a 10 in. structural slab, the floors being flat slab type. One inch granolithic finish treated with floor hardener is to be applied on the top of the structural slab. The interior columns are 2 ft. 6 in. in diameetr in the basement story; all interior columns being round. The outside walls are 8 in. Fisklock brick and the windows are rolled steel sash closed with double thick American glass, except where the building may be exposed to fire, where ¼-in. wire glass is to be used.

In the top story of this building dyed cotton is to be stored and any condensation over the roof would be a serious matter. To prevent this, a fill of 6-in. dry cinders is to be laid on the structural slab and on top of this a 1-in. stiff mortar coating is to be applied to carry the roofing, which is of the Barrett Specification type. The air space in the cinders, it is expected, will prevent condensation.

At the present time the 4th floor is being concreted on this building. It is expected to be completed in March. The contractors carrying out the work are the Turner Construction Co., and the architects and engineers are C. R. Makepeace & Co., of Providence.

These four reinforced concrete textile buildings going ahead at the present time are an interesting object lesson for the industry in general. Reinforced concrete is generally used in so many buildings of all types all over the country, for that matter all over the world, that there can no longer any doubt exist reasonably in minds of textile mill executives as to the fitness of this material for their buildings. This is unquestioned for warehouses, dyehouses and similar buildings. For weave sheds, spinning mills and manufacturing buildings in general, there may be some doubt as to the appropriateness of concrete, but any unprejudiced, open-minded investigation on this subject will quickly eliminate any uncertainty as to the satisfaction to be obtained from a reinforced concrete textile mill.

The big plant built by the Turner Construction Co. for the Naumkeag Steam Cotton Co. in Salem in 1914-15, has demonstrated the adaptability of concrete for spinning mills, and it is believed that a number of similar projects will go ahead during the year 1919.



ADDITION TO ROCK RUN MILLS; ORIGINAL MILL IN BACKGROUND; ROOF OF ADDITION DESIGNED TO CARRY A THIRD STORY

Rock Run Mills, Goshen, Indiana

Wool Carding and Spinning Mill— Addition Largely Increases Output

ONE of the most important knitting mill enlargements of the year is the addition constructed by the Rock Run Mills of Goshen, Ind., manufacturers of underwear and yarns for the wholesale trade. Cards, mules and complementary preparatory machinery have been installed in the new space, giving the company more spindles on men's wool ribbed union suits than any other mill in the United States, it is believed. The enlargement is of brick mill construction and harmonizes in general appearance with the original mill.

Early in February, 1918, it was decided to provide for additional production, and ground was broken late in February. Within ninety days the erection of the addition was entirely completed and yarn making machinery was in operation.

DESIGNED FOR ADDITIONAL STORY

The extension was constructed at one end of the plant, and is 66 feet by 83 feet in size, two stories and basement in height. The roof is designed to carry an additional story. The building provides space for six mules and six sets of cards, and the third story, to be added at a later date, will provide space for six additional mules.

The windows in the addition are double glazed and the company is well pleased with this feature. The ribbed glass enables them to do without curtains and the double glazing enables them to reduce the amount of radiation necessary. The heating system is provided with automatic temperature regulation throughout. This regulation was applied to the entire building at the time of constructing the addition.

The Rock Run Mills are equipped with the latest Davis & Furber cards and mules, Scott & Williams and Cooper knitting machines, and other equipment to match. All machinery is electrically driven and in many instances by individual motors.

The mill is located half way between Toledo and Chicago on the main line of the New York Central, and shipping facilities are excellent. Their product consists of men's wool ribbed union suits and they sell to wholesale trade exclusively. The line is sold through the office of Thos. Muir & Co., 346 Broadway, New York City.

The officers of Rock Run Mills are as follows: W. E. Charnley, president; B. F. Deahl, vice-president; M. C. Dow, chairman executive board; V. L. Stephenson, assistant treasurer and manager; W. L. Stephenson, treasurer and agent; H. M. Hostetler, assistant manager, and R. E. Jepson, superintendent.

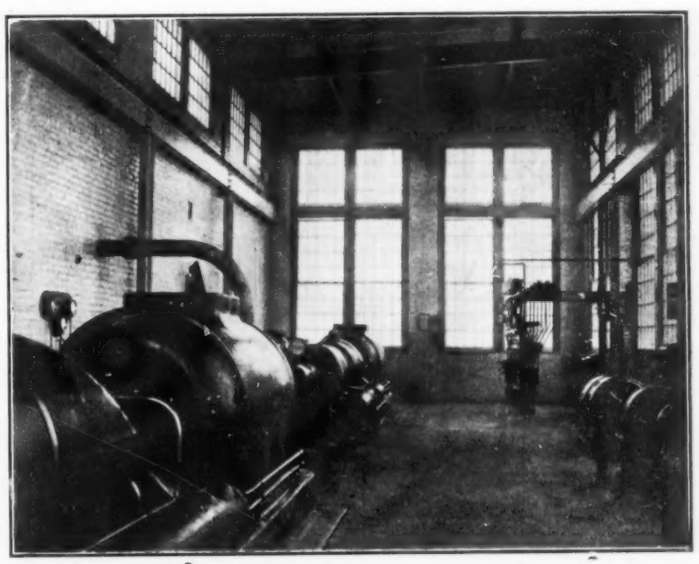
Plans for the new building, machinery layout, and supervision of construction were furnished through the Chicago office of Lockwood, Greene & Co., engineers.

New Power Plant at Goodyear Mills

Local Power Company Unable to Supply Sufficient Energy

THE latest of the many additions and improvements made by the Goodyear Cotton Mills, Inc., Killingly, Conn., is a new power plant which was put into service during September. With the reconstruction of the plant, and the increases made during the last two or three years, the local power company was unable to supply sufficient energy, so the concern decided to generate their own power. This decision was made in the spring and they began planning and construction work at once.

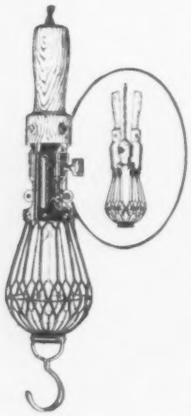
This plant, which was put in service Sept. 9, is housed in a neat brick building, 70 x 75 feet, with two floors. The lower floor contains the boiler feed pumps, and the upper floor the turbines. There are two Allis-Chalmers turbo-generator units, 625 K. V. A. capacity. These are served by barometric condenser taking water from the mill canal through an 18-inch pipe, and returning condensate to the canal by an additional pipe laid over the top of the feed pipe. This circulating water is supplied to the condensers by Worthington centrifugal pumps direct-connected to Kerr single staged turbines, which maintain a 25-pound pressure at the pump discharge. There are two exciter sets, both direct-connected, one driven by a Terry turbine and the other by an Allis-Chalmers induction motor.



TURBINE ROOM IN NEW POWER STATION OF GOODYEAR COTTON MILLS, INC.

The boiler room contains three 250 h. p. Stirling boilers, with room for an additional one. The boilers are hand-fired and equipped with Morse shaking grates. The feed water is heated to about 212 degrees in a Hoppes open heater of 500 h. p. It is handled by two Burnham feed pumps controlled by a Squires pump governor. The draft is controlled by a Ruggles damper regulator.

The station generates three phase cur-



A Penny for Prevention

is often worth Dollars for Cure. Eliminate the danger of fire in lighting the ordinarily dark corners—warehouse bins or lofts, machine and engine pits, etc.—with the few cents spent for a Flexco Split Handle Portable Lamp Guard.

Flexco Split Handle Portable

fastens in an instant to a Flexco or Flexco-Lok Lamp Guard with no need of wiring. The wire runs through grooves in the handle. Quickly connected to the halves of the guard—hinges with it as a single unit. A portable light is a necessity in every mill. Flexco Split Handle in connection with Flexco-Lok Guard is the logical combination. It prevents theft and breakage of bulbs, eliminates the danger of fire, and makes light easily available in the dark places.

Write for complete information. Also ask about Flexco-Lok Lamp Guards and about Alligator Flexible Steel Belt Lacing, which requires no tool other than a hammer to apply it, and it "stays put." Is smooth on both sides and suitable to any duty.

Flexible Steel Lacing Co.,

Dept. A. L. 28, 522 S. Clinton St., Chicago.

BALTIMORE BELTING CO. OAK TANNED BELT MAKERS BALTIMORE

REDUCE THE RISK

A large Southern Purchasing Agent said recently that he dreaded the time when he had to make a new belt contract. That it was a "risky proposition." You take no risk when you buy.

NAVY SPECIAL

Waterproof Belt

because we positively guarantee it to transmit all the power all the time and to satisfy you.

For your convenience we carry a complete stock of all our products at our store in Spartanburg, S. C.

BALTIMORE BELTING CO.

Southern Branch—SPARTANBURG, S. C.

"REMLU" PICKER LEATHER
CHROME TANNED
THE ULMER LEATHER CO.
NORWICH, CONN.

Long Life—Tough—
Pliable—Economical

"JUST THE VERY BEST"

Made by a practical tanner—
a man that knows requirements

Write for Sample and Price

THE ULMER LEATHER CO.
P. O. DRAWER 44 NORWICH, CONN.

VAL

REMOVAL NOTICE

CHARLES Bond COMPANY

ANNOUNCE REMOVAL FROM

520 Arch Street

To Their New Enlarged Building

617-619 Arch St.

Philadelphia

Makers of
Leather Belting
Power Transmitting Machinery
and Textile Mill Supplies

rent at 2,300 volts and 60 cycles. Output of station is handled through a five-panel switchboard of Italian marble, 2 generator panels, 1 exciter panel, and 2 line panels. The station is lighted either by direct or alternating current. The output of the station is transmitted by duplicate lines to sub-station in mill and transformed to 550 volts through duplicate transformer banks. At ten panel sub-station switchboard it is operated in parallel with two water turbine driven belted generators and distributed to the different departments.

POWER COMPANY EMERGENCY SERVICE

The local power company's line is also brought in at sub-station switchboard as standby service, and can be used as emergency service. Each source of power can be used separately, or operated in parallel with great flexibility of service.

The Goodyear hotel and mill village development of this company have been described previously. The welfare work at the plant has been perfected during the year by Superintendent Robert W. Boys, and the social club is believed to be one of the finest in the industry. They have bowling alleys, pool room, dance hall, moving picture theatre, hot and cold shower baths, and many other recreative features that go to make the social life of a mill village desirable. An orchestra consisting of six pieces, and a brass band of twenty-two pieces, have been organized which compare favorably with professional musicians. There is some form of entertainment going on in the social club every night.

BOILER ROOM IN NEW POWER STATION OF GOODYEAR COTTON MILLS, INC.

VIEW IN PRESSING AND PAIRING ROOM OF DALTON HOSIERY MILLS

Dalton Hosiery Mills, Dalton, Ga.

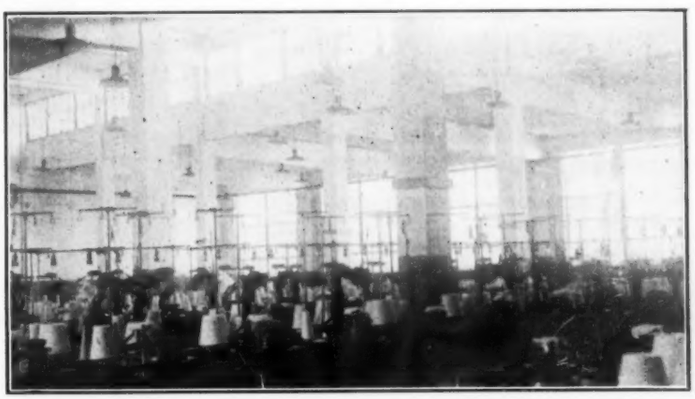
Efficient Manufacturing Unit with Excellent Light and Ventilation

THE Dalton Hosiery Mills, Dalton, Ga., have recently completed their new plant and are manufacturing high grade seamless hosiery, exclusively for the jobbing trade. They use 14s to 2-60s plain and mercerized yarns. Among the features that have been given special attention is the layout of departments so that material and goods are not rehandled, but progress in a logical orderly manner through the plant. Arrangements for the best possible light and ventilation have also been provided in the construction and equipment, and all walls and ceilings are painted white, with the exception of a six-foot belt at the bottom of the walls.

The mill is 100 feet long, 60 feet wide, with stair towers, lavatories, boiler room and dye house additional. The main mill has a basement used for storage purposes. The first floor is used for boarding, finishing and shipping; the second floor for knitting, looping, inspecting and mending. The construction is fireproof; the only wood being one thickness of floor in the knitting room and several outside doors. The sash are the latest type ventilating steel sash. Each floor is absolutely separate from the other, the only connection being by elevator shaft and stair tower, and all openings are well protected by fire doors.

The mill is built in 12-foot sections, a section being counted from the center of one post to the center of the next. The machinery is so placed that a post takes the place of a machine and the aisles are left entirely free from obstruction. All shafting is on the floor with individual motors to each line. These motors are placed at the end of each shaft, with a starting box mounted directly above.

The light in the knitting room is absolutely evenly distributed. Lights are placed in zig-zag fashion, and there are no wires or lights hanging near the floor. Due to the placing of the large lamps, it is almost impossible to make a shadow in the knitting, looping, inspecting and mending rooms.



A CORNER OF THE KNITTING ROOM, DALTON HOSIERY MILLS

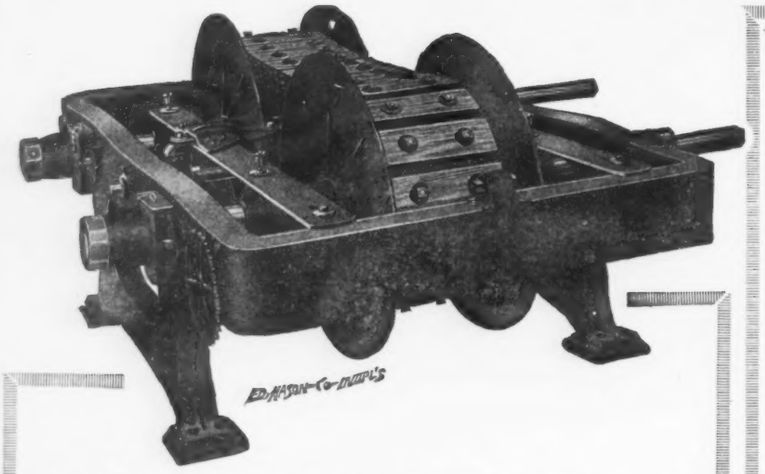
The knitting room is 60 feet wide with a 20-foot monitor running the entire length. In other words there is light and ventilation every 20 feet. The mill is heated by steam with wall radiators swung under each window. These radiators are entirely out of the way, and take up very little room, as they are only four inches wide.

DYEING AND FINISHING DEPARTMENTS

The finishing room construction is identical with the knitting room with the exception of the monitor. The light and ventilation is the same, as well as the fireproof construction. The floor in the boarding, pressing and finishing room, however, is concrete. The boarding room is ventilated at the floor half way up the steel sash and at the ceiling. This gives a circulation of cool air at the bottom, which causes the hot air to rise and pass out the windows. Paramount hosiery drying forms are used.

The dye house is also absolutely fireproof; but is only one story and is off to the rear of the plant. They use the Smith-Drum air hoist system both for sulphur black and colors. By this system they never handle the goods, as the crane lifts the buckets and the goods are dropped into trucks from a trap door at the bottom.

FRONT AND SIDE VIEW OF DALTON HOSIERY MILLS, DALTON, GA.



Mr. TEXTILE MAN: Why handicap yourself in getting only two or three set speed variations on your tenter frames, dryers, mangles, etc., when you can get almost instantly any speed desired with

The Reeves Variable Speed Transmission

It will double and sometimes treble the output of your mill without any additional overhead expense. Don't you think it is time you were investigating?

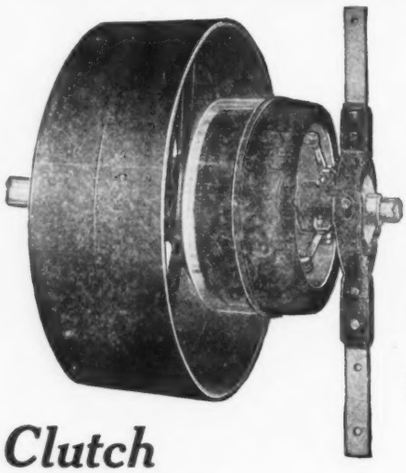
There is hardly a single Transmission sold but what brings in several reorders. The superintendent is always amazed at its simplicity of operation and ability to increase his production. Investigate NOW.

REEVES PULLEY COMPANY, Columbus, Indiana

Chicago Branch, Corner Clinton and Monroe Streets

EASTERN AGENTS

Watkins Engineering Supply Co. Boston, Mass.
W. E. Shipley Machinery Co. Philadelphia, Pa.
Patterson, Gottfried & Hunter, Inc., New York, N. Y.



Edgemont Plate Clutch

The Clutch for High or Low Speeds

Heavy duty power transmission purposes therefore essential to the textile industry.

Edgemont Friction Clutches

—clutches of instant action—simple—easily adjustable—dirtproof and dustproof; all wearing parts fully enclosed.

We have just the clutch for your need. Tell us what it is.

The Edgemont Machine Co.

DAYTON, OHIO, U. S. A.

STEPHENSON BAR BELT DRESSING
PRESERVES BELTS PREVENTS SLIPPING

LOOM FIXERS

Your Supply Box is incomplete without it.

Does not fly around and make grease spots on your warps.

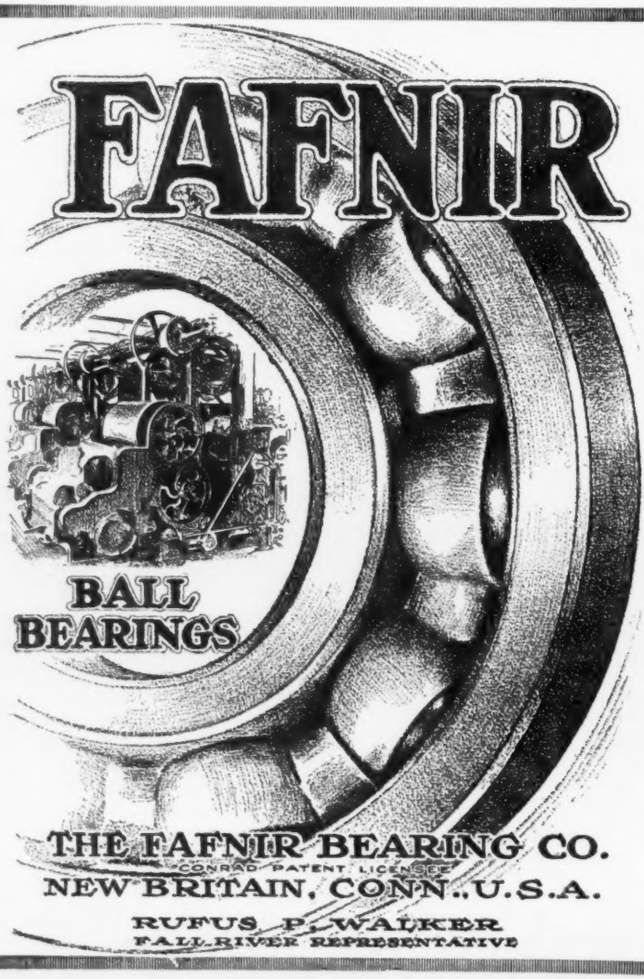
Sold on merit only, as the price is higher than most.

Write for free half pound, or to save time, order 30, 50 or 100 lbs.

Sole Makers

STEPHENSON MFG. CO.

Albany, N. Y.



and it is used for storage of yarn and merchandise.

They have 20 Wildman ribbers, 60 Acme knitters, 30 Scott and Williams 220-needle knitting machines, 20 Steady Dial loopers, and 2 Merrow sewing machines. They manufacture 300 dozen pair 176-needle half hose and 150 dozen pair 220-needle mercerized half hose daily.

Five horse power individual motors are used at the end of each line of shafting, and they have five of these motors. The plant is driven by electrical power purchased from the Georgia Railway & Light Co. They have an auxiliary steam plant and dynamo which generates 40 horse power. This auxiliary plant is connected directly with the main switchboard, and they can change the switch and pull the plant either by their own power plant or by the purchased power.

J. S. Hall is president of the Dalton Hosiery Mills; R. L. Westcott is vice-president; G. L. Westcott is secretary, treasurer and general manager, and R. T. Edwards is sales manager.

Holeproof Hosiery Company's New Mills Completed

Interior Views of Departments Show Many Novel and Interesting Features

THE new buildings of the Holeproof Hosiery Company, at Milwaukee, Wis., which were shown under construction a year ago, were completed and occupied early in 1918. These additions provide about 50 per cent. increase in facilities, the company now having in the vicinity of 250,000 square feet of manufacturing space.

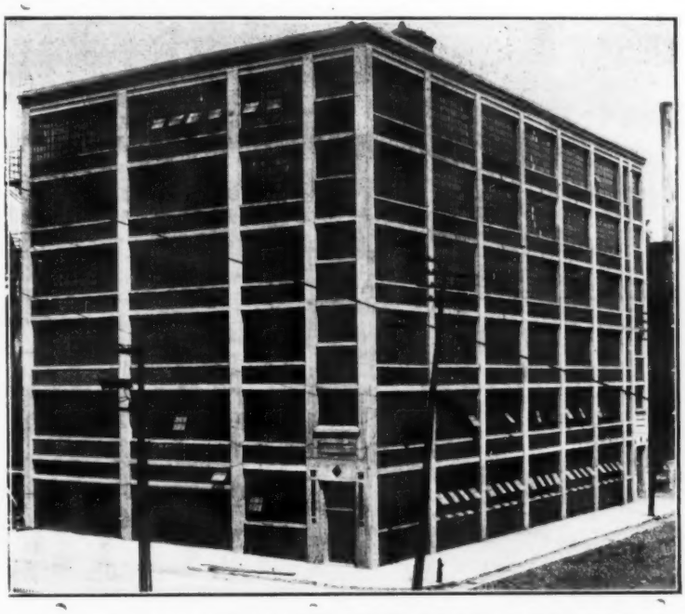
The dimensions of the new building are as follows: Manufacturing building, 85 x 150 feet, 6 stories in height, and 1-story dye house adjoining, about 65 x 100 feet. All construction is of reinforced concrete throughout, flat-slab type being used in the main 6-story building, and the dye house being of beam-and-girder construction.

COMPLETE REARRANGEMENT OF PLANT

In connection with the construction of the new buildings a complete rearrangement of the entire plant was worked out. This provided for locating most of the productive machinery in the new manufacturing building, where the best lighting, ventilation and working conditions for employes could be provided. The older portions of the plant are used for storage, receiving, shipping, inspection and packing departments, and some smaller manufacturing departments.

The column spacing and arrangement of the 6-story building was worked out to provide for the future installation of full-fashioned knitting machinery. The story heights in the upper stories are 14 feet from top to top of floors, and in the first story the height is about 17 feet. The columns are spaced 21 feet, 7 inches apart longitudinally, and about 28 feet on centers crosswise of the building. Fenestra steel sash has been used throughout and the glass is of the ribbed variety.

the country. In the knitting room on the third floor, of which a view is shown, there are more than 500 seamless knitting machines. The interior view of the looping room on the second floor shows plainly the indirect lighting fixtures which have 300-watt gas-filled lamps, and are spaced 14 feet centers both ways. All tables in this room run crosswise, the operatives thus facing a blank wall, with light coming over the right shoulder. Ventilating ducts may be seen on the ceiling at the right of the picture. The undyed stock room is completely enclosed with wire screen partitions and has bins constructed of the same material. One side of this room opens directly into the new dye house. Stock is received by a belt conveyor, which, in combination with a chute, brings goods from the looping and inspection department on the second floor. Another interior view of the first story shows the installation of Paramount metal forms. At the right of this illustration may be seen the wire screen partition enclosing the undyed stock room. The close spacing of the single-pipe forms provides for maximum capacity for the floor space.



COMPLETED NEW SIX-STORY MANUFACTURING BUILDING OF THE HOLEPROOF HOSIERY CO., MILWAUKEE, WIS.

HEATING AND VENTILATING

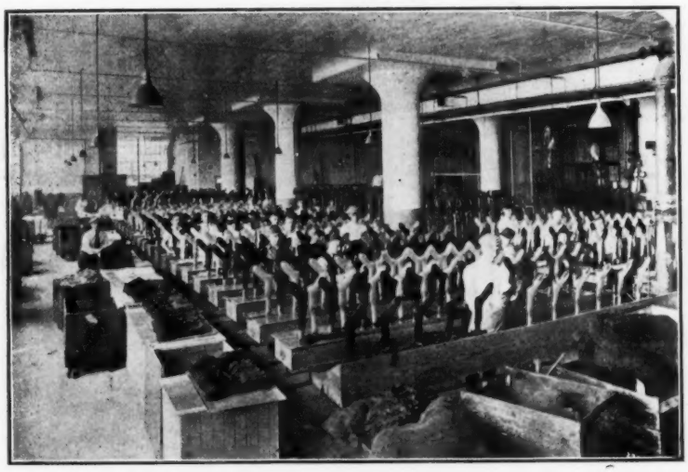
The ventilating system provides a complete air change every 10 minutes throughout the building, and all air is not only washed and conditioned before being brought in, but also has automatic temperature control applied individually to each room, this providing perfectly uniform conditions at all times. The heating and ventilating system was supplied by the Carrier Air Conditioning Company, and the arrangement presents some interesting features, which were described more in detail a year ago.

Indirect lighting has been used throughout in the looping and knitting departments, and this layout has not only been favorably commented on by the lighting experts of the Industrial Commission of Wisconsin, but also has been held up by them as a model for work of this kind.

The dye house contains a number of features of interest, some of which are brought out in the interior view shown. The construction is of reinforced concrete, with double-glazed sawtooth skylight, equipped with hollow metal sash. The entire roof is insulated with cork to prevent condensation.

A separate fan and heating system provide a very rapid air change of warm, dry air, which is introduced from below the floor, risers being located at each column, which may be seen in the accompanying illustration. The warm dry air absorbs steam, which results from the processes and maintains a clear atmosphere due to the rapid air changes.

Owing to the fireproof construction it has been possible to omit all sprinkler piping. All other piping for steam, hot and cold water, etc., is located below the floor, so there is absolutely no overhead piping to rust and drip on the goods.

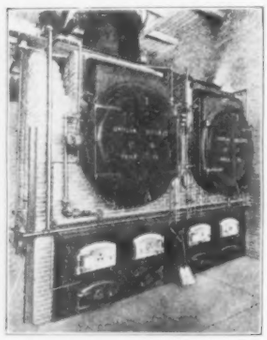


INTERIOR VIEW OF FIRST STORY IN HOLEPROOF PLANT, SHOWING INSTALLATION OF PARAMOUNT METAL FORMS; THE CLOSE SPACING OF THE SINGLE PIPE FORMS PROVIDES MAXIMUM CAPACITY FOR FLOOR SPACE

VIEW IN NEW DYE HOUSE OF HOLEPROOF HOSIERY CO.; MACHINES DRIVEN IN GROUPS WITH TWO MOTORS LOCATED ON COLUMN BRACKETS AND EQUIPPED WITH SILENT CHAIN DRIVES; VENTILATING DUCTS MAY BE SEEN ADJOINING EACH COLUMN

Steam at Less Cost

High steam boiler efficiency is absolutely essential under present day conditions. Generate your full steam requirements with less coal by equipping your plant now with



UNIFLOW BOILERS

Many thousands of horsepower of Uniflow Boiler installations have proven our claims, the savings effected by the Uniflow Boiler representing 15% to 30% of the fuel consumption.

Uniflow Boilers are scientifically designed to promote positive circulation in a definite direction to assure the maximum heat absorption.

Quick steamers with maximum steam liberating surface. No priming. Dry steam always assured.

Very compact. Occupy no more room than water tube of equal rating.

Well adapted to burning low grade bituminous coals smokelessly.

Easily installed. Operate with minimum radiation losses.

All sizes can be shipped from stock.

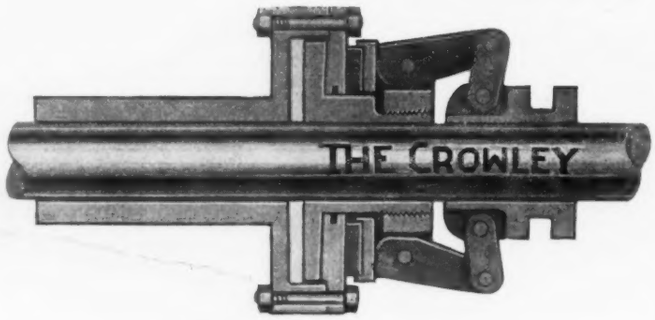
Write us for full details.

The Uniflow Boiler Co., Inc.

General Offices: Philadelphia, Pa.

Boston Pittsburgh Meriden, Conn.
Rochester Salt Lake City Sioux City Omaha

NATIONAL FRICTION CLUTCHES



Enormous pulling power is given National Friction Clutches by the use of transversely tapered plates working in opposite directions.

National Friction Clutches are not only positive in action and economical of power—they have the requisite stamina to take the punishment given to textile mill equipment.

We manufacture a complete line of friction clutches. Clutches may be made to your specifications.

NATIONAL CLUTCH CO.

FULTON AND LINCOLN STS. CHICAGO, ILL.

JONES & LAUGHLIN STEEL COMPANY

Manufacturers of Various Steel Products

Branch Offices		*Works*
Boston	Detroit	South Side Works
Buffalo	New York	Keystone Works
Chicago	Philadelphia	Eliza Furnaces & Coke Ovens
Cincinnati	San Francisco	Soho Department
Cleveland	St. Louis	Aliquippa Works

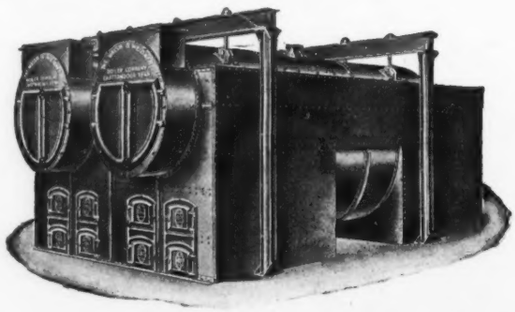
General Offices

JONES & LAUGHLIN BUILDING

PITTSBURGH

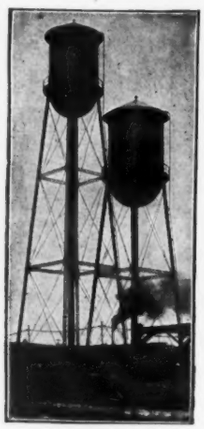
122

BOILERS OF ALL TYPES



Towers and Tanks
Storage Tanks
Pressure Tanks

OF ANY DESCRIPTION



Structural Steel Work

THE WALSH & WEIDNER BOILER CO.

CHATTANOOGA, TENN.

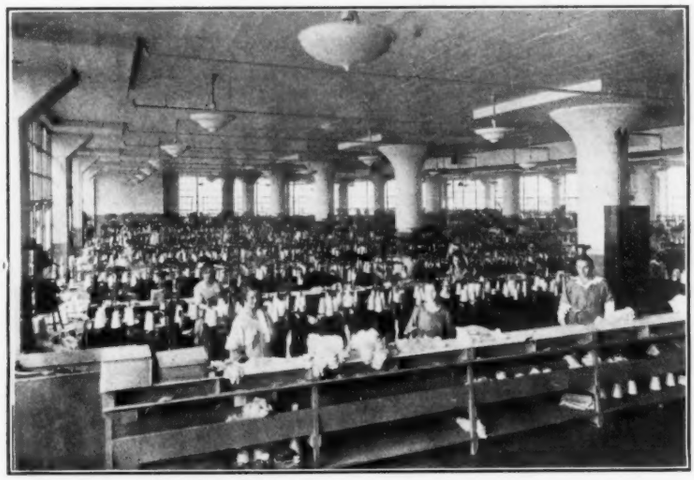
Branch Sales Offices—New York New Orleans Dallas Birmingham Havana

All of the larger machines are set in trenches in the floor, with plank floor over the trenches, which is provided with open joints to insure the best of drainage. The floor, outside of the trenches, is of mastic asphalt.

A modern drug room and laboratory with white enameled tile walls and terrazo floors. The wash bowls are supplied with hot and cold water through mixing valves, which may be seen on supply lines, and provision is made for washing in running water only.

The officials of this company are: Edward Freschl, president; Louis Heilbronner, secretary, and Max Freschl, superintendent. Max Freschl is now located in the artillery officers' training camp at Fort Zachary Taylor, Louisville, Ky.

The architectural and engineering work for this new plant was carried out by the Chicago office of Lockwood, Greene & Co., engineers, and in conjunction with the owners they also worked up completely the machinery layouts and rearrangements of the entire plant necessitated by the expansion.



KNITTING ROOM ON THE THIRD FLOOR; THIS ROOM CONTAINS OVER FIVE HUNDRED SEAMLESS KNITTERS

shown partitioned off at the left of the picture is included in the layout, and adjoining the alley at the rear of the building is a receiving vestibule and dial scale. A Permutit outfit of large capacity has been installed, supplying soft water to the dye house.

The machinery equipment of the new dye house includes fully enclosed dyeing machines of large capacity. Extractors are equipped with direct motor drive, while most of the machines are driven in groups, with motors located on column brackets and equipped with silent chain drives. It will be noted that the shafting is clamped directly to grooves in the concrete girders.

In connection with the old buildings of the company, alterations have been carried out providing complete new shipping and receiving department, with platforms at convenient height for loading and undoading, and enclosed driveways.

LUNCH ROOM, SANITARY CONVENIENCES

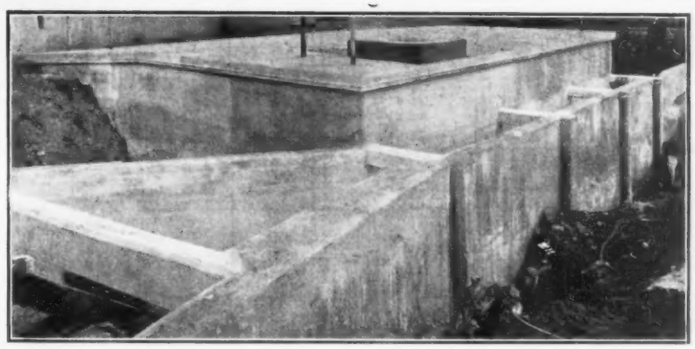
A modern cafeteria has been installed with provisions for feeding about three hundred employes at one time. In the new building the most modern toilets have been provided and wash rooms

FUEL OIL RESERVOIR

At the plant of the Anco Dyeing & Finishing Company, Wilkinsonville, Mass., the principal improvement in 1918 was the construction of a fuel oil reservoir to supplement the steel tank storage already in place, but which did not give sufficient reserve. This structure was designed and built by the Aberthaw Construction Company, of Boston, to provide facilities for unloading the oil directly from the cars and thence to an oil tank.

Through necessity the new structure was placed as high as possible with the result that it was located in the spillway of the canal by designing one side to form the wall of the spillway and a new concrete retaining wall for the other side.

UNDYED STOCK ROOM, COMPLETELY ENCLOSED WITH WIRE SCREEN PARTITION; BINS CONSTRUCTED OF SAME MATERIAL



FUEL OIL TANK AT ANCO DYEING & FINISHING CO.

The tank is 30 feet long by 36 feet wide and has a depth of 11 feet. At the lowest level is located a steam coil fed from the boiler house so that the oil may be warmed as it is drawn out. Five vent pipes and one sounding pipe pass through the 3-ply tar and gravel roof and access is had by means of a manhole.

Oscar Heineman Co. Chicago, Ill.

Precautions Taken to Prevent Condensation and Heat Losses

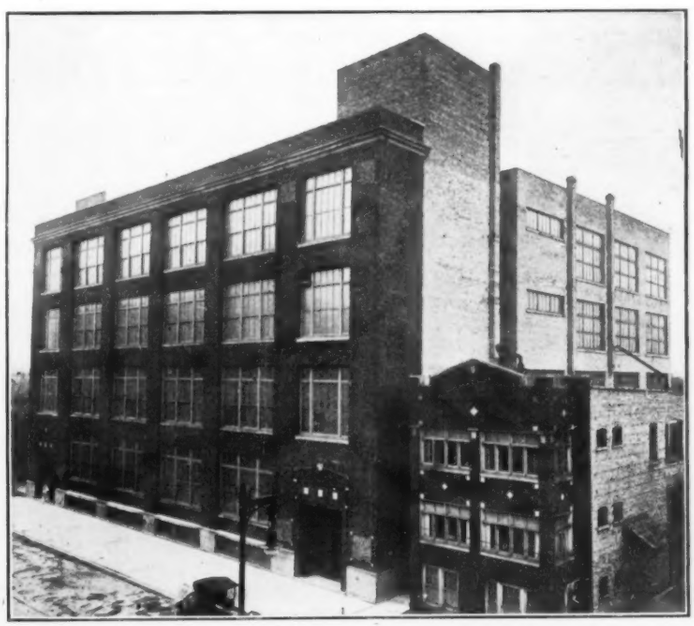
THE Oscar Heineman Company, Chicago, Ill., manufacturers of thrown silks, constructed during the year 1918 another building as shown by the accompanying illustration. This addition to their plant makes them one of the largest exclusive manufacturers of thrown silks in the country. The new building provides an increase of approximately 60 per cent. in capacity.

With the construction of this addition the floor space will be increased from 95,000 square feet to 175,000 square feet; number of employes will be increased from 1,000 to 1,500. The total connected motor capacity will be increased from about 700 h.p. to 1,200 h.p.

Construction on the new building was commenced in July, 1918, and the building is now substantially completed and ready for occupancy. The new building will be devoted entirely to silk throwing, the company already having ample storage space in other buildings. The new building is 125 x 125 feet in size, four stories and basement in height, and is connected with the other buildings of the company by tunnels.

The building will be equipped throughout with the most modern machinery, and in the construction and arrangement no expense has been spared in order to provide the best possible working space. Story heights throughout are 16 feet, thus providing the very best of daylight. The building is equipped with a Carrier system for supplying air throughout with independent and automatic temperature and humidity controls for each floor. The apparatus is installed in a central station in the basement, is of unusually large capacity, and is expected to produce very satisfactory results in the way of cooling in summer, in addition to its regular functions of heating, ventilating and humidifying.

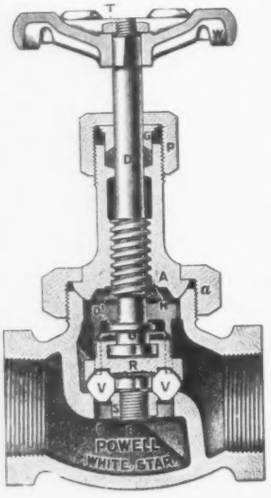
The architectural and engineering features together with supervision of construction were carried out by the Chicago office of Lockwood, Greene & Company, engineers.



NEW BUILDING ADDED DURING 1918 TO SILK THROWING PLANT OF OSCAR HEINEMAN CO.

POWELL VALVES

(Especially The "White Star" Valve)



More than 3 wise men and numerous others have used the Powell "White Star" Valves.

Our reputation for quality is always maintained by our superior manufacturing facilities which enable us to fill every requirement.

Ask your dealer for "Powell" Valves or write us

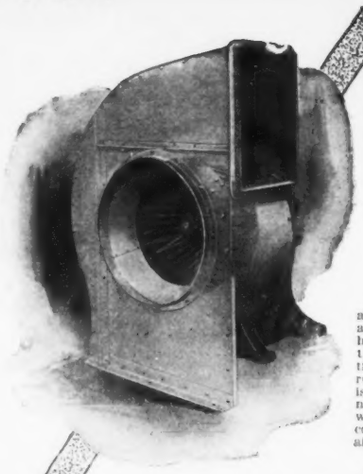
ESTABLISHED IN 1846

"White Star" Valve Booklet on request

THE WM. POWELL CO.

DEPENDABLE ENGINEERING SPECIALTIES

CINCINNATI, OHIO, U. S. A.



Eliminate Steam in your Dyehouse

If you could keep the air in your dyehouse warm and dry you would never have any steam. The troublesome condensation, that rots your roof, ruins your goods by dripping, and is dangerous to the workman, is nothing more or less than steam which has suddenly been chilled by coming in contact with the outside air or the cold walls and roof.

The "Buffalo" Hot Blast System

eliminates it entirely. By blowing a stream of warm *dry* air along the walls and roof the moisture does not get a chance to condense.

The Buffalo Way is positive—it is guaranteed

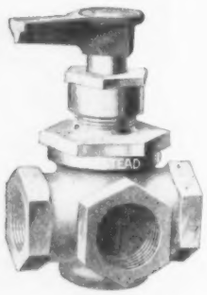
Save your buildings and goods — protect your workmen. Simply put your problem up to our Engineering Department: they will be only too glad to co-operate with you—no charge.

Write Department 73.

BUFFALO FORGE CO.
Buffalo, N. Y.

HOMESTEAD

LEAK-PROOF CONSTRUCTION



THE Homestead Quarter Turn Valve is closed at the top and at the bottom—leakage is impossible. It has a metal to metal seat, which is protected from wear while the pressure is pressing through.

The Homestead is limited to a quarter-turn in operation by means of a traveling cam, which also serves to hold the plug to the seat.

The many features of Homestead Quarter-Turn Valves make them the most serviceable valves you can use.

Made in Straightway, Threeway and Fourway patterns, for all conditions of service.

Send for Catalog

HOMESTEAD VALVE MFG. CO.
HOMESTEAD, PA.

DRAVO SUPERHEATERS

Simple
Efficient
Accessible

You can make no mistake using superheat in your power plant. Let us tell you about it and also about excellent apparatus for getting superheat.

DRAVO COMPANY

1195 Thirtieth Street Milwaukee, Wis.

PITTSBURGH ST. LOUIS CHICAGO NEW ORLEANS

SUPERHEATER & ENGINEERING CO.

1812 WOOLWORTH BUILDING NEW YORK

Licensed builders for Eastern territory

Progress in Southern Mill Village Improvements

Force Underlying the Movement and Future of This Work

By *E. S. Draper**

THE year 1918 has seen a wonderful interest in mill village improvement. Many mills have looked farseeingly into the future and have had completed plans made for future improvements, to be carried out when conditions of labor and material became stable. Other mills, and particularly those on large war contracts, have responded to a real need for community development and have carried on necessary improvements as a war measure to improve living conditions for their employes, and thus to increase their production. Still other mills have in their hands general reports specifying village improvements as a guide to action for the next decade of comprehensive and constructive improvements.

Many textile mills of the South have undertaken minor improvements of varying types on their own initiative. A considerable number of the mills undertaking extensive improvements have sought professional advice and have been guided by expert community planners. The majority of the mill developments handled professionally in the South have been advised or planned by the writer; many of them having been directed by men on his staff, under his supervision.

Mill improvements planned by the writer during 1918, with their salient features, are described in the following paragraphs. It seems advisable to class them as "Old Mill Village Improvements," or improvements or extensions undertaken in villages already established; and "New Mill Village Improvements." We will describe first the developments which come under the former heading.

VIEWS OF ERLANGER COTTON MILLS' VILLAGE; RESIDENCE PARK DEVELOPMENT

Old Mill Village Improvements

At the Victoria Mills, Rock Hill, S. C., the plans described and illustrated in the TEXTILE WORLD JOURNAL of March 16, 1918, are being carried out. Following the plan they have remodeled old houses and moved them to new locations. All roads have been graded and the athletic field also has been graded. The balance of the improvements, temporarily postponed because of the shortage of labor, are now being carried through. Large trees are being moved on the village streets.

The Spencer Mills, Rutherfordton, N. C., are developing Spindale Village under a resident landscape superintendent in accordance with a well considered plan. Streets and parkways are being graded, surfaced and drained. This is hilly country and much draining is required. New houses are being built on "Hosiery Hill" and roads and lots graded. Shrubs and trees have been planted in the park entrance which leads to the new chapel now under construction.

The Cleghorn Mills, Rutherfordton, N. C., have started to carry out a comprehensive plan for general village improvements. Streets are being graded, drained and surfaced. A new community house with children's playground is completed.

Probably more extensive and far reaching improvements have been carried out at the Erlanger Cotton Mills, Lexington, N. C., than any other mill in the South during the past year. Streets have been surfaced, gutters and sidewalks built, artistic retaining walls of field stone constructed, and many other features looking to the welfare and comfort of the employes instituted, despite the scarcity of labor and materials. The most important single development completed in the village has been the completion of the new Residence Park, a portion of the village laid out with bungalows, modern in every respect and built around and among a beautiful grove of trees with ample park reservation. The entrance to this attractive little section is marked by two large oaks, one on each side of the road, guarding the entrance like sentinels on duty. J. E. Sirrine has charge of engineering construction. The Erlanger Mills have a resident landscape superintendent.

A NEW VIRGINIA VILLAGE

The Carolina Cotton and Woolen Mills, Fieldale, Va., have carried on their village development. This attractive little city, resting among the hills of Virginia, is overlooked by the Fieldale Lodge, placed on the crest of a high hill overlooking the city, and approached by a road winding up the side of the mountain. Another important feature of the village under construction will be the civic center, where the public buildings will be grouped in a well ordered and imposing arrangement. Grading is now going on and streets are being constructed.

The Florence Mills, Forest City, N. C., have planned an attractive park and playground development in the heart of the village, which will be overlooked by attractive bungalows. A start has been made in the building of the new bungalows needed to house the additional workers required for the newly enlarged mill.

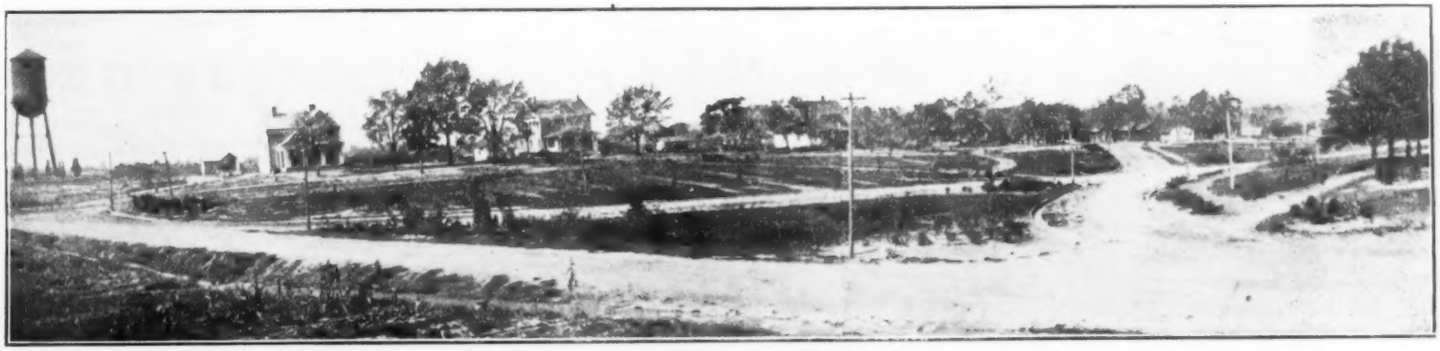
VILLAGE PLANNING DEVELOPMENT

The Caswell Cotton Mills, Kinston, N. C., have undertaken a complete village planning development; trees and shrubs have been put out on the mill and office grounds; trees planted on the parking strips; shrubs, vines and fruit trees set out on each employe's lot. In a few years this small village will be a bower of beauty.

The Wiscassett Mills Co., Albermarle, N. C., are undertaking further to improve their modern village by developing one block in the center of the village for playground purposes. A feature of this development is the provision for a border planting of trees and shrubs around the area, in accordance with the best ideas in modern playground development. Planting of shrubs about the mills is under way with the idea of softening and beautifying the mill surroundings.

The Fairmont Manufacturing Co., Fairmont, S. C., have had plans prepared for a unique civic center development, and a thorough revision of the village street system to incorporate additional building sites within the village proper. New houses are being built according to the plan.

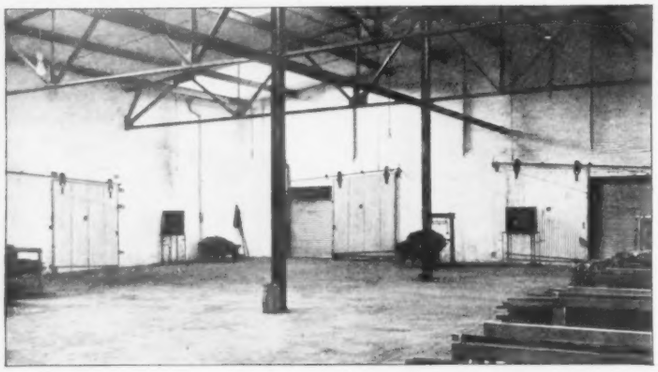
Pacolet Manufacturing Co., Pacolet, S. C., have instituted a number of improvements, including the development of open spaces, opportunity for which is provided in their attractive village. Planting of school and club house



VIEW OF PARKWAY IN VILLAGE OF PACOLET MFG. CO., PACOLET, S. C. AFTER DEVELOPMENT AND GROWTH WILL BE ONE OF MOST BEAUTIFUL AMONG INDUSTRIAL DEVELOPMENTS IN THE COUNTRY

* Landscape Architect and City Planner, Charlotte, N. C.

An Impassable Barrier to Fire



Installation Evans "Almetl" Fire Doors, Single Sliding Type, Covering Both Sides of Opening in Liggett & Meyers Tobacco Warehouse, Lexington, Ky.

A gateway to safety for your employees—a positive barrier to the spread of fire. Their installation will reduce your insurance premiums.

EVANS "ALMETL" FIRE DOORS

have been approved by Underwriters' Laboratories of Chicago; Factory Mutual Laboratories of Boston, and over 250 National, State and Municipal officials. You will find them in U. S. Government Arsenals, Panama Canal Buildings, Air Nitrate Plants, and several of the largest Ship Building Plants. They are adaptable to all conditions—rigid and indestructible—steel and asbestos, that's all—no tin to rust; no wood to rot; no thin covering to bruise. Cost less to install than standard tin-clad doors. Experienced contracting and erecting licensees in all prominent business localities of the United States. Send for catalog.

We also manufacture "Star" Ventilators, Metal Tiles and Shingles, Roofing Tin, Babbitt Metal and Solder.

IMPORTANT! MARK YOUR INQUIRY FOR DEPT. NO. 8

MERCHANT & EVANS Co

NEW YORK BALTIMORE ATLANTA CLEVELAND PHILADELPHIA WHEELING CHICAGO ST. LOUIS KANSAS CITY

ELECTROMOBILE
TRADE MARK
INDUSTRIAL TRUCK

This Tractor Does the Work of Three to Ten Wheelers

—and speeds up the work.

The Electromobile can be operated day and night and pays for itself in three months to a year.

Universally used by successful industrial plants.

Write for data.

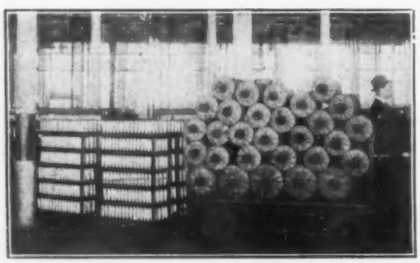
KOPPEL INDUSTRIAL CAR & EQUIPMENT CO.

Purchaser of
Orenstein-Arthur Koppel Co.

PLANT - - KOPPEL, PA.

SALES OFFICES
New York, Chicago, Pittsburg, San Francisco. Southwestern Distributors for the Electromobile, Electromobile Co., St. Louis, Mo.

The Connecting Link



Hunt 2-Ton Industrial Electric Trucks

Forming an almost continuous chain of your various departments. Keeping each supplied with the necessary articles of production—freeing them from a congestion of the completed product. And *saving* you the wages of from five to ten hand-truckers.

The Hunt 2-Ton Electric Industrial Truck is extremely flexible—up and down the narrowest of aisles—into the narrowest of corners—outside as well as inside the mill. May we tell you more about it? Address any of our offices.

C. W. HUNT CO., Inc.

501 Fifth Avenue, New York
Fisher Building, Chicago
39 Ferdinand Street, Boston
710 14th Street, N. W., Washington

Crescent Advantages

1—Substantial construction for hard service
2—Will climb 25% grade
3—4-wheel steer gives short turning radius
4—Does the work of 10 men
5—Capacity 4000 lbs.

CRESCENT TRUCK COMPANY
347-49 FIRST AVENUE ELIZABETH, NEW JERSEY

CRESCENT INDUSTRIAL TRUCKS

VICTORIA MILLS, ROCK HILL, S. C.; IMPROVEMENTS IN OLD VILLAGE HOUSES MAKE ATTRACTIVE BUNGALOWS

grounds, development of a children's playground, parkway, neighborhood park and other features are included in the projects now under way.

The Union-Buffalo Mills, at the Buffalo plant, Buffalo, S. C., are carrying on street and sidewalk paving, grading and construction improvements, and planting of trees and shrubs to transform a village on which little has been done for a decade into a more attractive place to live. Included in these developments are the improvement of the mill grounds and park, and the store group square.

The Woodside Cotton Mills, Greenville, S. C., completed during the early part of the year a comprehensive planting of trees, shrubs and vines throughout their extensive village. The results are already apparent, and each year will increase the beauty of the permanent planting instituted by these mills.

The Hermitage Cotton Mills, Camden, S. C., have constructed new houses and bungalows, both attractive and useful in type, and are following general improvement plans which provide for one of the most attractive yet simple parkway developments in the South.

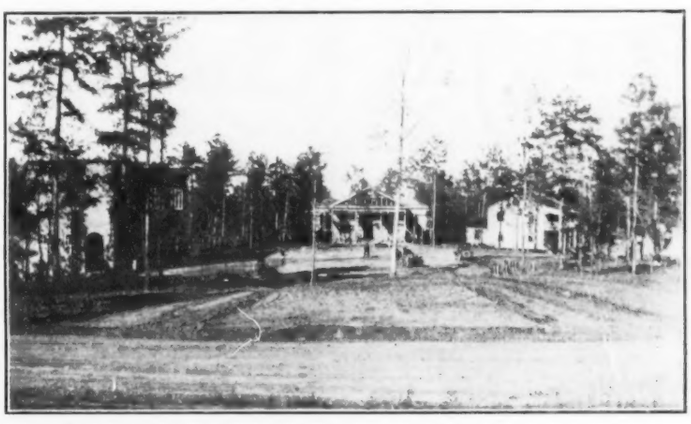
The Hamilton-Carhartt Cotton Mills, No. 3, Elberton, Ga., have had plans made for improvement and development of the village acquired through purchase of the Elberton plant. Unusual opportunity for a magnificent park development is existent within the confines of the village.

CIVIC CENTER AND PARKWAY

The Mandeville Cotton Mills, Carrolton, Ga., have graded and opened new streets according to a general plan for improvement and extensive utilization of the village property. Plans for a civic center and parkway, occupying vacant land in the center of the village, will tie in two sections of the village and develop an attractive area for the recreative use of the employes. J. E. Sirrine is the engineer.

The Dixie Cotton Mills, LaGrange, Ga., have had plans prepared for a community group to include kindergarten, community house and school, and all features of a modern playground. This development is to be a model in every respect, and it is centrally located in the village.

REPRESENTATIVE BUNGALOW AT ERLANGER MILL VILLAGE, LEXINGTON, N. C.



PARKWAY IMPROVEMENTS AT SPENCER MILLS' VILLAGE, SPINDALE, N. C.

New Mill Village Development

THE Myrtle Mills, Gastonia, N. C., have built a village of bungalow houses of modern design to house the employes of the new mill, equipped with sewer and water system. L. R. Robert & Co., Atlanta, are the architects and mill engineers. Ample provision has been made for community buildings, parks and playgrounds, which when completed will make this village one of the features of the city.

The Alexander Manufacturing Co., Forest City, N. C., have constructed a very attractive village of houses varying in type from bungalow to two-story houses of individual design. Sewer and water systems have been extended to the plant, which is on the outskirts of the city, advantage of which has been taken to give the employes the benefit of modern plumbing and bathroom features. The mill is located on a commanding site around which are grouped the tenement houses facing roads and parks carefully adjusted to the topography of the land. The details of this village are being carefully worked out to insure this village being an attractive member of the group of mills, of which Forest City is the center. R. C. Biberstein, Charlotte, N. C., is the mill engineer.

The Adams Cotton Mills, Macon, Ga., who have a small tract of land within the city limits, have laid out an attractive village, with houses grouped about small parks, so that each house overlooks a park space. L. W. Robert & Co., Atlanta, Ga., are the mill engineers.

DEVELOPMENT REQUIRING SEVERAL YEARS

The Haynes Mills, Avondale, N. C., has perhaps the largest mill village development to be started this year in the South. The mill is nearly complete. The area included within the village is over 100 acres. The village is a complete little city in itself, and has a civic center, with its offices and stores grouped about a park. The village includes houses for employees and shopkeepers, of varying types and sizes, according to requirements; churches, schools, kindergarten, parks and playgrounds. The roads are planned to give convenient access through the village and to and from the mills. It will require several years to complete this development.

The American Processing Company, Mt. Holly, N. C., had their village surveyed and laid out in a scientific manner, and are now erecting houses on the sites indicated on their village plan. Advantage has been taken of the favorable topography to provide for sewer and water to each house. Houses are now under construction.

OTHER MILLS STUDY PROBLEMS

A number of mills have had reports made to govern their improvements, illustrated by pictures of existing village conditions, by pictures showing proposed improvements executed elsewhere, and summarizing a problem of improvements to extend over a period of years. As various features of the report are taken up, plans are prepared for their execution. Mills which have had a thorough study made of their village improvements for a period of years include the following, Aragon Mills, Aragon, Ga.; American Textile Company, Atco, Ga.; Brookfield Mills, Brookford, N. C.; Riverside & Dan River Cotton Mills, Danville, Va. (Schoolfield Village).

RESULTS OF BETTERMENT WORK

Despite war conditions and high prices of labor and materials, many mills have found it advisable to carry on construction work on their improvements in order to provide their employees with attractive and sanitary villages. The direct result of this improvement work, wherever it has been carefully and systematically undertaken, has been to decrease the labor turnover and increase production. This is the immediate practical result of village improvement work.

This very education and improvement of the employes, aided by the willingness of the industrial owners to see them little by little take over the handling of their own community houses, schools, playgrounds, etc., as their development progresses and their ability becomes manifest, will not only admit of reduction in the number of activities in which the mill owners are now obliged to engage, but will steer the mill communities past the rock of paternalism on which so many industrial communities have been wrecked.

ERLANGER MILLS VILLAGE, ARTISTIC TYPE OF RETAINING WALL

A Valuable Book on Lubrication

This new **Oil-less Bushing** catalog contains some useful hints on lubrication—on the prevention of neglect at inaccessible bearing points—and other information of practical value to makers and users of textile machinery. Sent free on request.

All Genuine Graphited Oil-less Bushings have always been made at Bound Brook, U. S. A.

BOUND BROOK OIL-LESS BEARING CO.

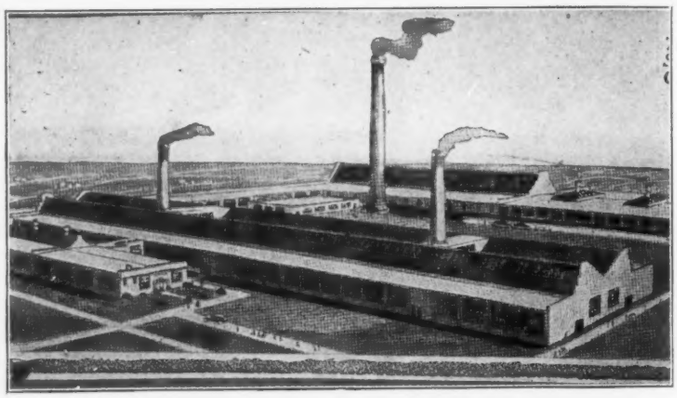
Specialists in the manufacture of Oil-less Bushings for more than a third of a century.

Bound Brook **New Jersey**

BOUND BROOK & NIGRUM

Trademark Registered U. S. Patent Office

OIL-LESS BUSHINGS



CHIMNEYS

FOR ALL PURPOSES

THE HEINE CHIMNEY CO.

ENGINEERS AND BUILDERS

CHICAGO, ILL.
121 W. Madison Street

NEW YORK CITY
28 Church Street

Representatives in all Principal Cities

Between the Power Plant and the Machines

Connecting the source of power with the many points where this power is applied, is the Transmission Machinery—a vitally important, though too often neglected factor of production. Inefficiency here means fuel waste.

"WOONSOCKET" Power Transmission Equipment

has established a record of years of faithful service. This is due not only to the correctness of design, workmanship and materials used in the different products, but also to a constant striving for the *best*.

No matter what your transmission problems, write us today for our suggestions as to their solution. Our Catalog contains much valuable information. Write for a copy.

Fairmount Foundry and Engineering Works

Woonsocket, R. I.

FOUNDERS TRANSMISSION ENGINEERS MACHINISTS

TRANSFORMERS

for All Standard Classes of Service

We make

Kuhlman Transformers

in all commercial capacities and for all commercial voltages and frequencies, to our or your own specifications; but to only *one* standard. A standard that insures your obtaining a transformer, which in construction, length of service and efficiency is surpassed by no other. A standard that has been our ideal for over 20 years. A number of our first-year (1894) transformers are still in service.

Full information on Kuhlman Transformers together with other important data are contained in booklet we will gladly send on request.

Kuhlman Electric Company

Bay City, Michigan

New York, N. Y. 114 Liberty Street
Minneapolis, Minn. 21 North Sixth Street
Charlotte, N. C. Commercial Building
Buffalo, N. Y. 280 Carolina Street
Chicago, Ill. 15 N. Jefferson Street
Toledo, Ohio 27-32 St. Clair Street
Los Angeles, Cal., 626 Washington Building

Details of Mill Construction

(*Continued from page 407*)

30 machines; operate dyehouse; electric drive.

New Jersey, Passaic. Linen Textile Co., Inc.; 26 River place; Francis J. McCann, pres. and treas.; 60 broad looms; linen goods; product sold direct.

Paterson. Liberty Belting Mills, East 5th and Rye streets; $30,000; Norman E. Heil, pres.; Charles Brahs, treas. and supt.; erected plant; equipment, 8 looms for the manufacture of cotton belting; electric drive.

Paterson. Premier Woven Label Co., 539 Totowa avenue; $30,000; J. H. Noble, pres.; 8 looms.

North Carolina, Concord. White Park Mills Co.; $62,000; W. H. Belk, pres.; purchased building; 10s to 18s hosiery yarns; 2,016 ring spindles.

Forest City. Alexander Mfg. Co.; $200,000; J. F. Alexander, pres.; erected mill, 230 x 81 ft.; hosiery yarns; 10,000 spindles electric drive. (Catlin & Co., New York, selling agents.)

Forest City. Floyds Creek Cotton Mills; J. L. & E. M. Crow, proprietors; built new mill 60 x 30 ft.; 432 spindles; skein yarn from 8s to 20s.

Hamlet. Marlboro Cotton Mills; one-story mill, 160 x 90 ft.; duck; 50 looms. (Branch of Marlboro Cotton Mills, McColl, S. C.)

Lenoir. Steele Cotton Mill Co.; $250,000; R. L. Steele, pres.; T. H. Broyhill, treas. and buyer; two-story mill, 100 x 185 ft.; 24s to 36 yarns; 5,000 spindles.

Monroe. Bearkin Cotton Mills; $150,000; M. K. Lee, pres.; leased building; cotton yarns; 5,000 spindles.

North Wilkesboro. Grier Cotton Mills, Inc.; $250,000; J. G. Hackett, pres.; R. D. Grier, treas. and buyer; carded cotton yarns; 6,000 spindles; erecting mill.

Wendell. Wendell Spinning Co.; $25,000; Joseph Erwin Gant, pres.; Kenneth Gant, treas.; 10s to 16s, cotton yarns; 3,000 spindles.

Ohio, Toledo. Towar Textile Mills Corp.; $2,500,000; S. C. Towar, pres.; purchased two buildings for storage purposes; erected new mill, 80 x 360 ft.; heavy cotton duck and tire cloths; 4,000 ring spindles, 35 looms. (Under management of Towar Cotton Mills, Inc., Niles, Mich.)

Rhode Island, Auburn. Budlong Mfg. Co.; $50,000; Frank L. Budlong, pres.; shoe laces and elastic braid.

Olneyville. Pettaconsett Manufacturing Co.; lace curtains, marquisettes, etc.; took over plant and installed 24 looms. (Branch of Providence.)

Pawtucket. Arbeka Webbing Co.; $95,000; George N. Proctor, pres.; webbings, tapes, braids; leased plant; will build later.

Providence. What Cheer Braid Co.; $30,000; shoe laces, braids, etc.; 100 braiders; leased plant.

Thornton. Thornton Cotton Duck Mills; $100,000; G. Joseph Nord, pres.; tire fabrics and mechanical ducks; 20 looms.

Westerly. Ninigret Mills Co.; $500,000; Fredk. E. Fowler, pres.; tire fabrics; 4,560 twister spindles; 20 looms; electric and water.

South Carolina, Greenville. Okeh Manufacturing Co.; $75,000; F. H. Cunningham, pres.; 12s to 16s yarns; 3,000 spndles; erected 130 x 50 ft. mill; 50 x 30 ft. picker house; 60 x 25 ft. winder room; 60 x 30 ft. storage house.

NEW WOOLEN MILLS

Massachusetts, Boston. Bay State Spinning Co.; $100,000; H. H. Lehnert, pres.; 5 sets cards with complementary spindles; woolen and merino yarns for knitting and weaving, and silk noils.

Chelsea. Massachusetts Woolen Co.; $25,000; Nathan Zeeberg, pres.; manufacture articles of every description relating to waste materials and wool stocks.

Lowell. Hamilton & Hersey, Inc.; $25,000; Philip M. Hamilton, pres.; 2 cards to start; 2 pickers; commission picking and carding.

Lowell. Wachusett Mills; $100,000; Samuel Jolesch, pres.; E. J. Hylan, treas.; cotton-warp worsted; leased building; installed 35 broad looms.

Upton. A. Levison purchased mill property and fitting it up for shoddy mill.

Worcester. Worcester Yarn Mill, 47 Lagrange street; Thomas J. Hayes, supt.; commission carding and spinning of woolen yarns; 2 sets of cards; 2 mules.

New Hampshire, Keene. Wassookeag Woolen Corp.; purchased building 212x50 ft; 8 sets of cards, 40 looms; steam and electric power. (Branch of Dexter, Me., plant).

Newport. Brampton Woolen Co.; purchased building, added two stories to west wing; installed 4 sets of cards with spinning machinery, 48 looms; Vincent J. Brenan, Jr., supt.; shirtings, suitings and dress goods. (Branch of Sunapee, N. H.).

New Jersey, Passaic. Umkomaas Woolen Mills, Inc.; $250,000; Charles La Croix, pres.; 4 cards; 2,300 mule spindles; 100 looms, electric drive; men's wear and novelties.

New York, Amsterdam. Hogg & Piper, 69-71 Milton avenue; Walter Hogg and H. Paul Piper, Jr., proprietors; wool, noils and waste; manufacture garnetted stock and commission garnetting; 2 sets of cards; 2 garnetts and 2 pickers.

Auburn. Maribond Woolen Co.; $30,000; Edward Bond, pres., supt. and buyer; Government blankets and men's wear woolens; 5 looms; dyeing department; electric drive.

Ballston Spa. Ballston Spa Spinning Co., Inc.; $100,000; F. J. Shutts, pres.; leased part of F. J. Shutts Co. building; 1,296 spindles, 2 cards and 4 old mules; 1 to 10 cut hosiery yarns for F. J. Shutts Co.

Ohio, Conneaut. Conneaut Woolen Mills Co.; $100,000; Emil Joseph, pres.; woolen and merino yarns; 4 sets of cards, 3,600 spindles; electric drive. (Product sold direct.)

Pennsylvania, Norristown. Hosey Worsted Co.; $25,000; John J. Hosey, pres.; commission spinning and twisting; 5,000 spinning spindles; 2,500 twisting spindles; leased plant.

Philadelphia. Adelphhi Textile Co., Second & Huntingdon streets; $10,000; Harry Costello, pres.; blankets; 41 broad looms.

Rhode Island, Chepachet. Marion Woolen Mills, Inc.; $12,000; James Dow, pres.; custom picking, carding and garnetting; 6 sets of cards; 1 garnett; 3 pickers; built new boiler house to old mill which it purchased.

North Smithfield. Andrews Mill Co.; built six new buildings, including main mill, storehouse, boiler house, power house, etc. (Branch of Philadelphia).

Rocky Brook. Rocky Brook Mills Co., Inc.; $250,000; Leon E. Danforth, pres.; men's wear and blankets; 20 wide looms, 2 sets of cards; erected five new buildings, including main mill, dyehouse and power plant.

Woonsocket. Charles Worsted Co.; $10,000; Charles D. Whitney, pres.; men's wear; 48 looms; leased space in Glenark Mill.

Canada, Que., Rimouski. La Cie de Lainage de Rimouski; $20,000; J. Bellavance, pres.; tweeds, flannels and blankets; 2 hosiery; new mill erected; installed 50 ribbers and 30 footers.

Maryland, Emmittsburg. Union Mfg. Co.; new mill 70 x 30 ft., one story high; wool, merino and cotton hosiery; 60 knitting machines. (Branch of Frederick, Md., company.)

Hagerstown. Stitchbound Hosiery Mills; David Rabinovitch, pres. and buyer; leased building on West Antietam street; 136 knitting machines; dyehouse; use 6s and 10s two-ply woolen yarns and 8 to 12-strand tram silk. (Branch of Reading, Pa., company.)

Massachusetts. Lawrence. Dustin Knitting Mills; $10,000; John F. Dustin, pres.; M. F. Goodwin, treas.; Jersey cloth and velours; 6 knitting machines.

Waltham. Index Knitting Co., 394 Newton street; Gilbert Harris and G. E. Tarrington, proprietors; 8 knitting machines; woolen and cotton knit goods.

Michigan, Dowagiac. Cooper Underwear Co.; remodeled building on Front street; manufacture underwear. (Branch of Kenosha, Wis., plant.)

Manistee. Cooper Underwear Co.; built new three-story mill, 100 x 125 ft.; 30 knitters, 75 sewing machines; men's cotton union suits. (Branch of Kenosha, Wis.)

Middleville. Western Knitting Mills; took over plant and built addition for manufacturing gloves and socks. (Branch of Rochester, Mich.)

Minnesota, St. Paul. Liberty Knitting Mills; 511 St. Peter street; A. Straus, M. Kuller, proprietors; sweaters, toques and knitted novelties; 4 circular, 5 flat knitting machines; 6 sewing machines; electric.

New Hampshire, Manchester. Liberty Hosiery Co., Walter F. Connor, pres., treas. and buyer; leased plant at 106 Franklin street; 18 knitting machines installed; electric drive.

New Jersey, Passaic. Walker Knitting Mills, 3s single and 36s two-ply worsted and 8s and 24s single cotton yarns. (Genson & Bergman, 334 Fourth avenue, New York, selling agents).

Fonda. Fonda Hosiery & Tubing Co.; $5,000; William J. Sullivan, pres.; James M. Beverley, treas; knit tubing; 15 knitting machines. (Will add lumbermen's socks to product later).

Gloversville. Hayes Jersey Co.; $15,000; leased building at 16 Rail Road; jersey cloth; use 25s wool yarns; electric drive; product sold direct.

Johnstown. Columbia Glove & Textile Co.; 11 South Millicher street; $5,000; L. E. Winnie, pres. and supt.; cotton and wool jersey gloves and other fabric gloves.

Johnstown. Comfort Knitting Co., Inc.; leased building at 6 Spring street; $10,000; Charles L. Troutwine, pres.; Frederick G. Troutwine, treas.; knit gloves; 40 knitting machines and 5 sewing machines.

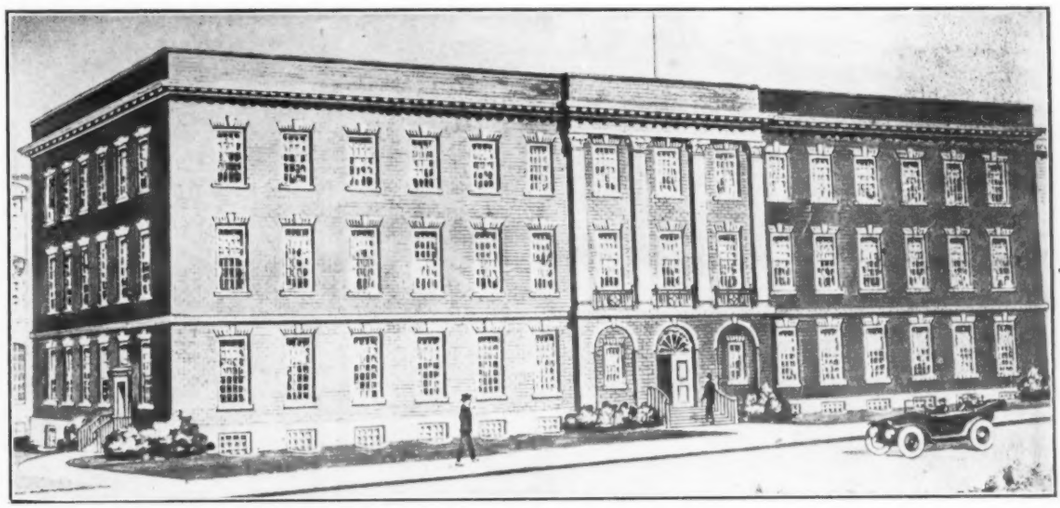
New York. Hekru Knitting Mills, Inc.; $40,000; 450 Broome street; fiber silk cloth; Max Keller, pres.; Harry A. Heyman, treas.

New York. May Knitting Co., Inc., 114-116 Fifth avenue; $10,000; Nathan Rabinowitz, pres.; David Lubasch, treas. and buyer; knit goods, sweaters, etc. (Work done by contract).

New York. Peckham-Foreman, Inc., 79 East 130th street; Richard T. Peckham, pres.; men's "travelo" elastic knit jackets; 6 knitting and 10 sewing machines.

Oswego. New Fabric Cloth Mills Co.; $75,000; Kirk N. White, pres.; Thomas N. White, sec.; leased space in Ontario Industrial Co.'s plant; installed machinery for manufacturing chamoisette and silk jersey cloth for gloves; increased capital in Sept. to $100,000. (Sells entire product to Ontario and Keiro Glove Companies).

Rensselaer. Ashe Mills; Frank Ashe, owner; jersey cloth, hosiery and tubings; leased plant.



WHITIN MACHINE WORKS' NEW OFFICE BUILDING; 125 x 65 FEET, 3 STORIES AND BASEMENT; REINFORCED CONCRETE FIREPROOF CONSTRUCTION; ELECTRIC PASSENGER ELEVATOR CONNECTS WITH ALL FLOORS

sets of cards; 7 looms; 2 pickers. (Building plant).

Ontario, Toronto. Woolstox, Ltd.; 488 Wellington street; M. Granatstein, pres.; wool shoddy; 5 sets of cards; 6 pickers; erected 40 x 100 six-story building.

NEW KNITTING MILLS

Alabama, Decatur. Decatur Hosiery Mills; leased mill; 80 knitting, 20 looping machines, 10 ribbers; men's fiber silk and mercerized half hose; branch plant of the Nick-A-Jack Hosiery Mills of Chattanooga, Tenn.

California, Los Angeles. Golden State Knitting Mills; Walter O. Kraus, superintendent; men's, women's and children's sweaters, bathing suits and fancy knit goods; 5 knitting machines; 5 sewing machines.

Georgia, Acworth. Acworth Hosiery Mills; $20,000; R. L. McMillan, pres.; new mill erected; 40 knitters, 2 sewing machines, 15 loopers; manufacture ladies' seamless hosiery.

Griffin. Kincaid Knitting Mills; $200,000; J. M. Thomas, pres.; mill erected 120 x 60 ft.; 100 hosiery knitting machines; men's half hose; electric drive.

Newnan. Newnan Hosiery Mills; men's and women's hosiery; 48 knitting machines, 20 loopers; electric drive.

Illinois, Waterloo. Chester Knitting Mills; children's hose; erected 50 x 100-ft. building. (Branch of St. Louis, Mo.)

Chicago. Re-Use Knitted Gauze Co.; $10,000; rented building at 243 Schuyler street; 40 knitting, 20 sewing machines; surgical dressings.

Peoria. Lehman, Williams Co.; $1,000,000; Edward Lehman, pres. and treas.; Fred R. Williams, buyer; leased two-story building, 25 knitting, 25 sewing machines; electric drive.

Kentucky, Princeton. Princeton Hosiery Mills; $30,000; W. E. Cochran, pres.; G. G. Harrison, sec. and treas.; misses' ribbed hosiery; new mill erected; installed 50 ribbers and 30 footers.

Amsterdam. Guy Park Hosiery Co.; A. J. Waterstreet, pres.; I. A. Waterstreet, gen. mgr.; leased building; installed 3 knitting machines, 1 looper, drying and shaping forms.

Brooklyn. Casino Knitting Mills, 879 Grand street; $10,000; T. H. Rockov, pres.; wool and fancy silk sweaters; 15 knitting and 6 sewing machines.

Brooklyn. Kent Knitting Mills, Inc.; 285-287 North Sixth street; $50,000; Davis Samuel, pres.; jersey cloth; 4 latch needle knitting machines, 3 tables spring needle machines, 128 spindles for bobbin winders, 60 spindle cone winders, 2 double fulling mills; buy 26s two-ply worsted yarns in the grease. (Offices 463 Keap street, Brooklyn).

Brooklyn. Merit Hosiery Co., Inc., 67 Thirty-fourth street; women's silk hosiery; 28 knitting machines.

Brooklyn. Park Knitting Mills; 865 Park avenue; Morris Fetner, prop.; operate 24 mule spindles, 6 flat knitting and 8 sewing machines.

Brooklyn. Premier Knitting Mills, Inc., 97 Montrose avenue; $5,000; Nathan Kaplan, pres.; novelty sweaters; 10 knitting and 8 sewing machines.

Brooklyn. R. & B. Knitting Mills, Inc.; $10,000; M. Rubin, pres.; sweaters and knit goods; 13 knitting and 8 sewing machines.

Buffalo. Knit Products Corp., 1 Howell street; $20,000; Eugene E. Falk, pres.; boucles, jerseys, astrakans, chinchillas for women's and children's trade, coat linings for men's wear trade; 8 knitting, 6 sewing machines; uses 5s to 14s cut wool yarn.

Troy. Trojan Cloth Mfg. Co.; proprietors Norval M. Gormley and Clinton H. New; leased building; knitted overcoatings; 8 special knitting machines; 1 sewing machine.

Utica. Bowas Mfg. Co., Inc.; $25,000; J. A. Bowas, pres.; plant leased at 401 Columbia street; table damasks, 72-inch cloths; 25 looms; electric drive. (D. C. Campbell, Inc., New York, selling agents).

North Carolina, Boiling Springs. Winner Hosiery Mill Co.; $10,000; Dr. J. W. Wood, pres.; erected mill; men's half hose and misses' ribbed hosiery; 22 knitting and 1 sewing machine, 6 loopers.

Burlington. Brown Hosiery Mills; erected mill, 100 x 40 ft.; 36 knitters; half hose.

Burlington. Juvenile Hosiery Mill; $20,000; Jno. and C. R. Love, owners; children's ribbed stockings; 24 ribbers; 10 loopers, 1 sewing machine; sell through Cannon Mills.

Cherryville. Josephine Knitting Mills; D. R. Mauney, prop.; men's half hose; 20 knitting machines; use 18s to 30s single hosiery yarns.

Collettsville. Collettsville Hosiery Mill; $100,000; J. G. Garrou, pres; erected mill; 50 x 30 ft., with 20 x 12 ft. engine room; 40 knitting machines. (Product sold through Waldensian Hosiery Mill, Inc.)

Concord. Hoover Hosiery Co.; $50,000; S. D. Arwood, pres.; leased building on West Depot street; men's 240 mercerized and silk hosiery; 30 knitting and 1 sewing machine. (Cannon Mills, selling agents).

East Durham. Knit-Well Hosiery Mills, Inc.; $50,000; T. A. Clarke, pres.; half hose; 50 knitting machines, 12 ribbers and 10 loopers.

Edenton. Edenton Hosiery Mills; $10,000; leased building; men's high-grade half hose; electric drive.

Elizabeth City. Standard Mfg. Co.; $12,000; D. Van Horn, pres.; men's and women's hosiery; 41 knitting machines.

MULLER
ASBESTONE
COMPOSITION FLOORING

Your Old Floor as a Base for a New Floor

No need of tearing up your old worn and badly battered wood or cement floors when covering them with ASBESTONE plastic, sanitary, fireproof flooring.

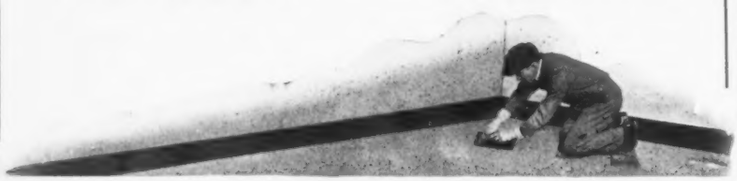
No confusion, interruption, dirt, dust or refuse. All holes, cracks and crevises are automatically filled when the old floor is covered with ASBESTONE.

ASBESTONE is spread with a trowel over concrete or wood producing a tough, resilient, one-piece floor, that is easy on the feet.

Ideal for Offices, Entrances, Lockers, Toilets, Stair Treads and other places too numerous to mention, combining durability, sanitation and fireproofness with the artistic and beautiful.

Write, giving us an outline of your difficulties and the experts in our intelligence department will confer with you and assist you in determining your requirements.

Franklyn R. Muller & Co.
913 MADISON STREET WAUKEGAN, ILL.



Ready to Elevate 800-lb. Case on a Revolvator

Case Elevated and Revolved Ready to Unload

SAVE 1 to 4 MEN In Your Warehouse

BY USING A

REVOLVATOR

Besides saving labor, the Revolvator saves time and storage space. It permits of piling bales, cases, barrels, rolled products, etc., clear to the ceiling. The Revolvator may also be used for loading trucks or double decking inside freight cars.

Write for Bulletin No. TW42

REVOLVATOR CO.
317 GARFIELD AVENUE JERSEY CITY, N. J.

Sales Agent for New York Revolving Portable Elevator Company

Turns Your Iron Barrel Into A Good Self-Measuring Outfit

Type 11
Notice the Details

Adjusted to any ordinary oil barrel in a jiffy. Measures the oil exactly without overfilling the oil cans or spilling over the floor.

The lock prevents unauthorized persons from drawing oil.

No more excuse for oil soaked floors.

Hundreds of users say it is the best oil and labor saver they ever had.

BETTER ORDER A FEW TODAY. Weighs but 25 lbs. and is very finely built of the best materials and workmanship.

Price $18.00

MILWAUKEE TANK WORKS, Milwaukee, Wisconsin
Thirty Different Styles of Tanks and Pumps for Oils, Gasoline, etc.

ANTI-PLUVIUS
PUTTYLESS SKYLIGHTS
protect your valuable machinery and products

The no-putty, non-leaking, felt-binder in ANTI-PLUVIUS is surety of a tight skylight.

Let us show you where we can reduce your light expense, prevent accidents, increase the value of your plant.

The G. Drouvé Co.
Bridgeport Conn.

Ellenboro. Ellenboro Hosiery Mill Co.; $12,000; G. S. Harroll, pres. and treas.; erected mill; men's half hose and women's hemtop stockings; 32 knitting and 2 sewing machines; dyehouse.

Forest City. Wingo Mfg. Co.; $12,000; J. F. Alexander, pres.; new mill 60 x 40 ft.; hosiery and men's half hose; 24 knitting machines; electric drive.

Gastonia. Gaston Knitting Mills, Inc.; $100,000; N. B. Kendrick, pres.; men's half hose; 40 knitting, 1 sewing machine; use 12 to 14s and 16s to 18s carded yarns; electric drive.

Gastonia. Patrick Knitting Co.; $50,000; new mill; men's 160-needle half hose; 15 knitting and 1 sewing machine; use 12s, 16s and 26s carded yarns; product sold finished or unfinished.

Gastonia. Wilson-Bell Co.; $50,000; Frank L. Wilson, pres. and buyer; half hose; 25 knitting and 2 sewing machines.

Graham. Graham Hosiery Mills; $50,000; J. S. Frost, pres.; erected mill; mercerized cotton hosiery yarn; electric drive.

Hickory. Ranford Knitting Mills; J. E. Bent, supt.; men's and women's 176 and 200-needle hose and infants' socks and hose.

High Point. High Point Underwear Mills; $125,000; Smith & Terry; leased mill; lightweight underwear; output 12,000 garments per week.

High Point. Whittington Hosiery Co.; $100,000; C. C. Reitzel, pres.; new mill; men's, women's and children's hosiery; 27 knitting and 5 sewing machines; product sold in the gray; electric drive.

Kernersville. Kernersville Knitting Co.; $125,000; J. H. Adams, pres.; J. E. Millis, treas.; misses' ribbed hose; product sold direct. (Office at High Point, N. C.) purchased building; daily capacity, 1,000 doz. pairs of hose.

Lawndale. Elmore Hosiery Mills Co.; $12,000; Decatur Elmore, pres.; men's half hose; 20 knitting machines.

Lincolnton. Lincoln Hosiery Mills; C. S. and M. L. Little, proprietors; leased building; 20 knitting, 1 sewing machine and 5 loopers; men's hosiery; electric drive; use 18s to 30s single yarns.

Marion. Elizabeth James Mills; C. F. James, proprietor; 200 needle half hose; 50 knitting machines; 3 ribbers; use combed and carded 16s to 20s yarn.

Mount Airy. Mayo Mills; purchased buildings; installed knitting machines for children's hosiery and 100 sewing machines for finishing men's underwear. (Branch of Mayodan).

Mebane. Mebane Hosiery Mills Co.; $50,000; W. S. Crawford, pres.; half hose; 24 knitting machines; product marketed in the gray.

North Wilkesboro. Wilkes Hosiery Mills; P. W. Eshelman, prop.; men's half hose; 24 knitting and 1 sewing machine, 6 loopers and 8 ribbers; product sold in the gray; leased building.

Oxford. Hemshaw Hosiery Mills; $10,000; Henry M. Shaw; leased building; men's half hose; electric drive.

Raleigh. Zebulon Hosiery Mills No. 2; leased building; half hose; 50 knitters, 1 sewing machine. (Branch of Zebulon, N. C.).

Ridgecrest. Ridgecrest Hosiery Mills, Inc.; $20,000; H. B. Craven, pres.; leased building; 33 knitting machines; electric drive.

St. Pauls. Cantigny Hosiery Mills; L. McInnis and J. B. Evans, in charge of the business; Z. A. Fowler, supt.; 10 knitting machines.

Shelby. Carpenter-Baber Hosiery Mills; $50,000; M. A. Carpenter, pres.; 200-needle half hose; 12 knitting machines.

Shelby. Lihomac Hosiery Mills; $5,000; George A. Hoyle, pres.; men's half hose; 15 knitters, 3 loopers and 2 ribbing machines; use 18s, 24s, 30s and 50s combed peeler yarns; electric drive.

Shelby. Minnie Hosiery Mills; H. D. Wilson; new mill, 35 x 25 ft.; 10 knitting; daily capacity 120 doz. pairs of hose; electric drive.

Siler City. Siler City Hosiery Mills; $12,000; J. M. Stout, pres.; erected mill; men's, women's and children's hosiery; 66 knitting machines; electric drive.

Staley. Staley Hosiery Mill Co.; $50,000; C. P. Fox, pres.; leased building; infants' and misses' ribbed hose; 25 knitting machines.

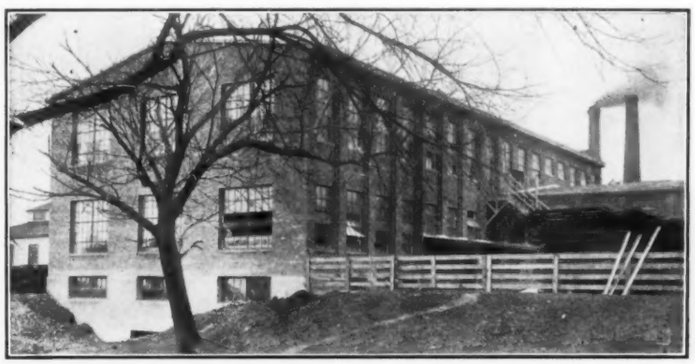
Tarboro. Tarboro Knitting Co.; $150,000; A. McDowell, pres.; erected mill; children's 320-needle hosiery.

Thomasville. Ragan Knitting Co., $40,000; A. H. Ragan, sec.; R. R. Ragan, treas.; purchased building 120 x 40 ft.; children's hose; 50 knitting machines; 30 h.p. electric drive.

Ohio, Sidney. Sidney Knitting Co.; $100,000; I. H. Thedieck, pres.; leased plant; cotton ribbed shirts, men's union suits; 20 knitting and 50 sewing machines; electric drive.

Oklahoma, Oklahoma City. Chickasaw Hosiery Mills; $200,000; A. W. Kenyon, pres.; T. E. Cullen, treas.; new mill, 140 x 100 ft.; ladies' cotton and lisle hosiery under the trade mark "Indian Brand"; 80 to 100 knitting machines, 15 loopers.

Pennsylvania, Conshohocken. Herbert Hosiery Mills; leased building and installed 300 knitters and 20 loopers (branch of Philadelphia); purchased equipment of Germantown Hosiery Co., Philadelphia, and consolidated this machinery with new branch.



ADDITION TO PLANT OF FOSTER MACHINE CO., WESTFIELD, MASS.; ERECTED BY FLYNT BUILDING & CONSTRUCTION CO.

Dalmatia. Lyon Knit Mill; 21 knitters and 3 loopers; new branch of Herndon, Pa.

Doylestown. Pilling & Madeley, Inc.; hosiery; 18 knitting machines; branch of Philadelphia.

Fredericksburg. Fredericksburg Hosiery Mill; 50 knitting machines (branch of S. S. Miller, of Reading, Pa.).

Gouglersville. Gouglersville Hosiery Mills; George Ruthenberg, pres.; cotton half hose; 62 knitting machines.

Harrisburg. Harris Hosiery Co.; $25,000; J. L. Shearer, Jr., pres.; men's half hose.

Hawley. Hawley Knitting Mills, Inc.; $25,000; Wm. A. Friedman, treas.; sweaters, scarfs, shawls; 50 knitting machines and 20 sewing machines.

Lemoyne. Okeh Hosiery Mills; George W. Malick, pres.; infants' hosiery and stocking feet; erected 40 x 100 ft. building.

Lebanon. Hill Knitting Co., Inc.; $80,000; Thomas Hill, treas.; underwear; leased space; 34 knitting machines; 54 sewing machines.

Mechanicsburg. Moorhead Knitting Co., 14 North Arch street; cotton half hose (branch of Harrisburg).

Mohnton. West End Manufacturing Co.; $50,000; Jacob C. Kessler, treas.; hosiery; 20 operatives employed; steam and water power used.

Mount Carmel. Mount Carmel Knitting Mills; $60,000; C. C. Fox, pres.; hosiery; 42 knitters.

Norristown. Norristown Hosiery Mills; $50,000; A. M. Pigeon, mgr.; silk hosiery; 50 knitting machines; electric power.

Philadelphia. Bauerly & Ern, Third and Bristol streets; seamless silk and mercerized hosiery; 65 knitting machines.

Philadelphia. Republic Knitting Mills, Hope and Oxford streets; J. Wesley Querns, pres.; men's knit underwear; operate 18 knitting machines, 20 sewing machines.

Philadelphia. Ross-Smith-Hanlon Hosiery Co.; Adams avenue and Wingohocking street, Frankford; infants' and women's hosiery; 47 knitting, 10 ribbers, 5 loopers; John P. Ross, pres. (Started as Betsy Ross Hosiery Co. at 4099 Frankford avenue.)

Philadelphia. S. & Z. Hosiery Co., 1027 Ridge avenue; $25,000; John V. Slaughter, pres. and treas.; William T. Zachary, mgr. and buyer; 260-needle 21-inch boot silk hose; 48 machines; use mercerized and tram silk yarns.

Philadelphia. Tailor Made Hosiery Co., Hancock and Somerset streets; $25,000; Samuel Eagleson, pres.; mercerized and silk half hose; 50 knitting machines, 8 loopers.

Philadelphia. W. H. Thornton, 3560 North Marshall street; men's and women's fine gauge mercerized cotton and silk hosiery; 48 knitting machines; sell jobbers.

Pottsville. Charles F. Adcock; knitted Swiss ribbed vests; 6 knitting machines; 5 sewing machines.

Reading. Arrow Hosiery Mills, Inc.; C. E. Grim, pres.; womens' hosiery; 32 knitting machines.

Reading. M. & F. Hosiery Mills; J. R. Fritz, pres.; half hose; 9 knitters, 3 loopers and 3 ribbers.

Reading. Sandow Knitting Mills, Inc.; $20,000; J. Frank Tragle, pres.; ladies' vests and union suits; 10 knitting and 14 sewing machines; leased plant.

Reading. The Triangle Textile Co.; G. Fred Mertz, pres.; infants' socks; 40 knitting machines.

Stony Creek Mills. Leinbach Bros. Knitting Co.; Charles M. and John E. Leinbach, props.; men's half hose; 12 knitters, 3 ribbers and 1 looper.

Rhode Island, Woonsocket. Eden Manufacturing Co.; 620 Social street; half hose; 10 knitting machines; Rosario L. Dueller, proprietor.

Woonsocket. Rhode Island Knitting Co.; $25,000; Narcisse J. La Rochelle, pres.; bathing suits; 12 knitting and 15 sewing machines; product sold through Campe Corporation; leased space.

South Carolina, Anderson. Anderson Hosiery Mills; $25,000; R. H. Coney, pres.; 200-needle hose; 40 knitting machines and 10 loopers; electric power; mill 100 x 50 ft. and boiler room 20 x 24 ft. erected.

Bennettsville. Stirling Hosiery Mills; $50,000; T. B. McLaurin, pres.; children's hosiery; 24 knitters, 24 ribbers; electric drive; purchased building.

Blackville. Sunlight Hosiery Mills; $30,000; C. E. Partain, agent; half hose; 60 knitters; 30 loopers; built 134 x 70 ft. mill and dyehouse 59 x 49 ft.

Cheraw. Pee Dee Knitting Mills; $100,000; Robert Chapman, pres.; men's union suits; 22 knitting machines and 60 sewing machines; electric drive; product sold through Clift & Goodrich; leased building.

Columbia. G. H. Tilton & Son; children's cotton hosiery; space leased; 100 knitting machines installed; goods in the gray. (Branch of main plant in Laconia, N. H.)

Rock Hill. Liberty Hosiery Co.; $25,000; J. C. Canther, pres.; men's half hose; 50 knitting machines; leased building.

Tennessee, Athens. Liberty Hosiery Mills; R. J. Fisher, owner; men's half hose; 48 knitting machines, 4 loopers, 12 ribbers; goods finished at Athens Hosiery Mills; product sold through John M. Given, Inc.; erected 100 x 40 ft. mill.

Charleston. Richmond Hosiery Mills; 50 knitting machines. (Branch of Rossville, Ga.)

Chattanooga. Davis Bros., Inc.; $25,000; J. C. Davis, pres.; half hose; 25 knitting machines; dye, bleach and finish; purchased plant.

Coal Creek. Magnet Knitting Mills; Garnett Andrews, pres.; men's half hose; 150 knitters; electric power; erected 60 x 200 ft. building. (Branch of Clinton, Tenn.)

La Follette. Magnet Knitting Mills No. 3; men's half hose; goods in the gray. (Branch of Clinton.)

Maysville. Richmond Hosiery Mills; 100 knitting machines. (Branch of Rossville, Ga.)

Murfreesboro. Sunshine Hosiery Mill; 40 knitting machines; 12 sewing machines; E. Garant, supt.; space leased. (Branch of Chattanooga.)

Virginia, Chatham. Ellis Hosiery Co.; half hose; 100 knitting machines; J. Allen Crews, supt. (Branch of Philadelphia.) (Started first at Danville, Va., and moved in July.)

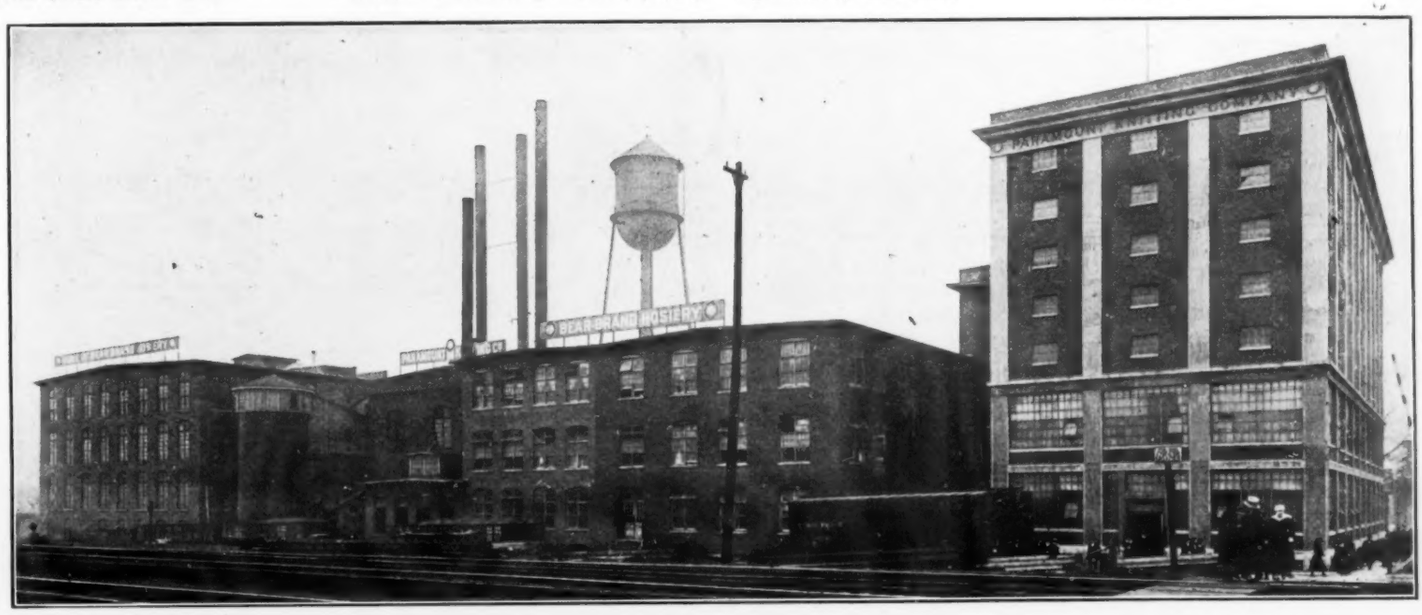
Norfolk. H. & M. Co.; $50,000; E. E. Stuckey, pres.; jersey cloth; 10 knitting machines; dyeing equipment; product sold direct; building leased.

Roanoke. Carolina Cotton & Woolen Mills Co.; children's underwear; capacity 8,000 garments per week; branch of Spray, N. C.

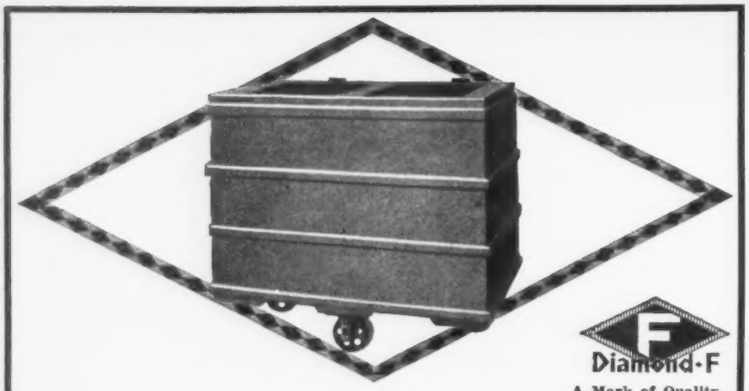
Wisconsin, Edgarton. Racine Feet Knitting Co.; new branch of Beloit mill.

Canada, Ontario, Toronto. Tarbox Bros., 1236 Dundas street West; knit mop cloth; 3 knitting machines, 5 sewing machines.

Woodstock. Hosiers, Ltd.; $100,000; circular knit hosiery; K. W. Harvey, general manager; 36 knitting machines on ladies' silk hosiery; 20 ribbers and 18 footers on children's hosiery; dye and finishing done by Harvey Knitting Co.; building 50 x 70 ft. erected.



KANKAKEE PLANT OF PARAMOUNT KNITTING COMPANY. ADDITIONS MAKE THIS ONE OF THE LARGEST AND MOST COMPLETE IN THE COUNTRY



Diamond-F
A Mark of Quality
A Sign of Service

The Truck for Service

The factory equipped with trucks made of Diamond Fibre is equipped for service. They will be doing duty long after trucks of other material have reached the scrap heap. Made particularly strong where the wear is hardest. Diamond Fibre is a superior grade of hard or vulcanized fibre.

All sizes and shapes for all purposes. We make a complete line of Mill Receptacles equally as high grade as the trucks. They are properly designed for the particular use to which each is to be put. All Diamond Fibre Receptacles are smooth on the inside.

Send for samples of Diamond Fibre, prices, information.

Diamond State Fibre Company
BRIDGEPORT, PA. (Near Philadelphia)
Offices in principal cities

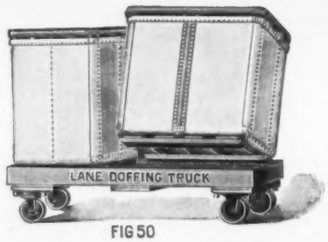


FIG 50

LANE CANVAS BASKETS BOXES *and* TRUCKS

Accepted by American Mills as

STANDARD EQUIPMENT

Write for Catalog

W. T. LANE & BROTHER, Mfrs., **Poughkeepsie, N. Y.**

Do you ever lose time over broken taps? What do you think of the following letter?

Dayton, Ohio, Jan. 21st, 1918.

The Walton Co.,
Hartford, Conn.

Gentlemen:

We beg to ask if you manufacture a tap Extractor that can be used on as small as an 8-B. A. tap. We have a full set of your larger sizes which are perfectly satisfactory.

We are breaking a great many taps in small aluminum castings for typewriters and they are most difficult to extract.

Yours very truly,

THE DAYTON ADDING MACHINE AND TIME LOCK CO.,
R. Harry Croninger,
Vice-President.

RHC:FS.

As is evident, this letter was sent without solicitation and we have since received permission to publish it. The product of this company requires the highest quality of workmanship, methods and material, and this expression of opinion from such a company speaks well of the efficiency of our Extractor.

THE WALTON COMPANY
306 Pearl Street HARTFORD, CONN.

Wetherell Bros. Co.

31 OLIVER STREET
BOSTON, MASS.

STEEL

Textile Steel Specialists
Wire for knitting needles

NEW SILK MILLS

Alabama, Albany. Albany Silk Mills; $25,000; broad silks; mill building 100 x 50 ft.; 400 spindles, 60 looms.

New Jersey, Clinton. Howard Mains, West Main street; 1,000 spindles; capacity 1,000 pounds of tram per week for hosiery trade; electric power; silk throwing.

Clifton. Cocoon Throwing Co.; $50,000; Henry Doherty, Jr., pres. (This is company to operate local branch of Henry Doherty, to which addition was built and machinery moved from Hall Mill branch in Paterson).

Cranford. Shaheen Silk Mills; $10,000; George and Thomas A. Shaheen, pres.; broad silks; 48 looms.

INTERIOR OF NEW THIRD STORY ON SHEBOYGAN MILL; USED FOR KNITTING, LOOPING AND INSPECTION WORK

Haledon. Gootenberg-Westerhoff Silk Co., No. Eighth street; $50,000; operating 24 looms on broad silks.

Paterson. S. Adler, 104 Ward street; 8 broad looms.

Paterson. Anetta Silk Co., 462 East 19th street; $10,000; S. Huptich, pres.; broad silks; 10 looms.

Paterson. Aurora Ribbon Mfg. Co., 17 Madison avenue; Fred. Buemenberger, pres.; 10 ribbon looms.

Paterson. Ide Baker, 320 North Eighth street; 100 spindles and 16 looms; broad silks.

Paterson. Bartson & Caswell, Inc., 117 Redwood avenue; $15,000; Charles A. Caswell, pres.; Octave J. Barton, treas.; 24 looms; crepe de chines, crepe Georgette, taffeta, grosgrains and satins; electric drive; product sold direct.

Paterson. Belfield Silk Co., 93 River street; $25,000; Max Seidel, agent; broad silks; 12 looms.

Paterson. The Bond Silk Co., Madison street; $25,000; 10 broad silk looms.

Paterson. Cornell Silk Co., 93 River street; 20 broad silk looms.

Paterson. Dobbins, Levy & Co., 82 Court street; $20,000; N. L. Dobbins, pres. and supt.; Max Levy, treas.; 20 looms; broad silks; electric drive; product sold direct.

Paterson. Dressler Bros., 166 Ward street; 12 broad silk looms on commission.

Paterson. Eastern Silk Co., 19 Amity street; $10,000; I. Haldak, pres.; I. Shillit, treas.; erected mill and installed 200 spindles and 22 looms; manufactures Georgettes, crepe de chine, taffetas and messaline silks; electric drive.

Paterson. Florence Silk Co.; Atherton Mill; 12 looms; weaving on commission.

Paterson. Fox Silk Co., Inc., 85 Getty avenue; $25,000; Alfred C. Fox, pres., supt.; broad silks; 28 looms.

Paterson. Garden Silk Co., 164 Ward street; 12 looms; commission weaving.

Paterson. Gibraltar Silk Co., 95 Getty avenue; $25,000; Nathan Farber, pres.; Harry Siegel, sec. and treas.; 3 warping frames and 5 winders; supplies warps to manufacturers.

Paterson. Gordon & Berner, 60 Railroad avenue; 20 looms; broad silks.

Paterson. Honest Silk Co.; $35,000; Slater Mill; 22 looms.

Paterson. Kanber Silk Co., 64 Ryle avenue; $25,000; David Weber, agent.

Paterson. Philip Kreutzberg, Essex Mill; 8 looms; broad silk.

Paterson. L. & S. Silk Co.; $10,000; Hyman Lefkowitz, pres.; 24 looms.

Paterson. Moon Silk Co., Inc.; Atherton Mill, Mill street; $15,000; George Arcash, pres.; 12 looms; commission weaving.

Paterson. Lilienbloom & Parson, Van Kirk Mill; operating 20 spindles and 11 looms; broad silks.

Paterson. Rialto Silk Mfg. Co., 165 Ward street; $25,000; Rose Katz, pres.; Rose Freed, treas.; 120 spindles and 24 looms; broad silk weaving on commission.

Paterson. Salcon Silk Co., Inc., 62 Putnam street; $25,000; William Reich, pres.; 150 spindles and 32 looms on broad silks; product sold direct.

Paterson. Shapan & Sirotey; 10 looms; broad silk.

Paterson. Simon Bros., 164 Ward street; 8 looms.

Paterson. Verona Silk Co., 93 River street; 12 looms.

Sussex. Pelgram & Mayer; leased building and installed 3,000 spindles for throwing silk; electric drive. (Branch of Paterson.)

Union Hill. Bergen Silk Mills, Inc.; 540 Twelfth street; $25,000; Harry Koslaw, pres.; Abraham Barnett, treas.; 20 broad looms; broad silks.

New York, Fultonville. Snyder Mfg. Co.; Starin Snyder, proprietor; erected new mill; installed 128 spindles and 2 looms; chamoisette, tricot silk and net silk.

New York. Roger Yarn Co., 205 Wooster street; M. H. Levin, prop.; commission throwing of artificial silk; capacity 100 pounds daily.

Syracuse. Onondaga Silk Co., Inc.; 131 Shonnard street; $30,000; G. Knecht, pres.; J. F. Freiberger, treas.; erected three-story mill building; 2,000 spindles and 24 looms; crepe twist and crepe de chine.

Pennsylvania, Lebanon. Valley Silk Throwing Co., Inc.; $10,000; Samuel Cohen, pres.; 3,200 spindles.

Lehighton. Post Silk Co.; $25,000; Frank A. Post, president; broad silks; 44 looms; plant leased.

Liverpool. Jouvaud & Lavigne Co.; new branch in leased building, with 12,000 pounds of silk daily capacity.

Marietta. Marietta Silk Mfg. Co.; John A. Shillow, pres.; broad silks; 40 looms.

Nanticoke. Liberty Silk Throwing Co.; $150,000; S. J. Aronsohn, pres.; 25,000 spindles; erected 52 x 145 ft. mill.

Scranton. Providence Spinning Co.; $50,000; J. J. Twohey, pres.; 6,000 spindles. (Branch of Bentley & Twohey.)

Rhode Island, Central Falls. Lyons Silk Works, Inc.; $50,000; Oswald Paradis, pres.; 32 looms.

Central Falls. Rhode Island Silk Co.; $125,000; Isaac Weill, pres.; broad silks; 150 looms installed in standing building.

Pawtucket. Milano Silk Weaving Co.; $100,000; Americo D. Adam, pres.; warping and weaving of broad silks; 75 looms; three plants, at Prairie avenue, Pawtucket; Front street, Pawtucket, and Soisonio court, Providence, respectively; sell direct.

Providence. Stoller-Hilgers Silk Mills, Inc.; 26 Fountain street; $50,000; N. Sallinger, pres.; shirtings and fancy silks; 64 looms.

West Virginia, Parkersburg. Parkersburg Silk Mill; silk yarns; 15,000 spindles; 304 x 54 ft. building started last year completed and operations started. (Branch of Kahn & Feldman, New York.)

MISCELLANEOUS NEW MILLS

Massachusetts, Grafton. Herbert Taylor & Co.; concrete mill erected; machinery installed to do custom picking and carding.

Hudson. Hudson Dyeing Co.; $15,000; James H. Hancock, pres.; dye tops; electric power.

Newton. Newton Combing Co.; $75,000; Moses Spences, president; commission wool scouring.

Worcester. Aetna Waste Co., Bracket street; $10,000; Charles S. Holden, pres.; Harry C. Crawford, treas.; manufacture and deal in cotton, woolen and worsted waste.

Minnesota, St. Paul. Wool cleaning plant to be established by Carl Kaeblr, 567 Bidwell street.

New Jersey, Passaic. Algonquin Wool Stock Co., Inc.; 1 Canal street; $100,000; Daniel Gillan, pres. and buyer; commission carbonizing and picking.

Passaic. Diamond Black Dyeing Co., 380-382 Bloomfield avenue; $10,000; Isaac H. Lefferts, pres.; Frank McFadden, treas.; dye cotton materials fast black.

Passaic. Liberty Piece Dyeing & Finishing Co., Inc.; Canal street; Wm. F. Bengel, treas.

Paterson. Arrow Piece Dyeing and Finishing Co., 15 East 23d street; Jean Lanza, pres.; Irving Hopper, treas.; general dyeing and finishing of broad silk goods.

Paterson. Beltramo Piece Dyeing & Finishing Co., Hazel street and Montclair avenue; $100,000; Frank J. Beltramo, pres.; Louis Knecht, treas.; erected new mill, costing $20,000; piece dyeing and finishing of silks, satins and silk and cotton jersey cloth.

Paterson. Van Winding & Warping Co., leased floor at 153-155 Brown avenue; 304 winding spindles and three warpers for commission warping and winding; electric power.

New York, Cohoes. Cohoes Fibre Re-Claiming Corp.; $30,000; Moses F. Aufsesser, pres.; purchased building on Ontario street and remodeled same; carbonizing.

Colonie. Colonie Fibre Co., Inc.; $40,000; Leon Rowe, pres.; leased building on Arch street and remodeled same; 6 garnetts, 5 pickers and duster; garnetting cotton, wool and silk.

New York. Arrow Yarn Dyeing Corp.; 224 West 26th street; $5,000; Samuel Friedberg, pres.; dyeing of cotton yarns only; steam and electric power.

New York. Fred Krause, 205 Greene street; specializing on finishing ribbons.

North Carolina, Mt. Holly. American Processing Co.; $300,000; C. E. Hutchinson, president; building plant; will finish cotton yarns.

Ohio, Columbus. International Waste & Textile Co.; Louis Mellman, pres.; acquired building 387 East Livingston avenue; rework and shred all kinds of cotton and woolen fiber for mattress' makers and upholsterers' purposes; 3 woolen and cotton pickers, 2 jute pickers, 1 60-inch garnett; daily capacity 2,500 pounds reworked wool or cotton, 6,000 pounds reworked jute.

Pennsylvania, Arcadia. Arcadia Print Works; $350,000; Clarence W. McGuire, president; bleaching, dyeing and printing of cotton piece goods; 100 operatives employed; alterations to mill which were started in 1917 completed, and mill started up.

Erie. Erie Woolen Mills; $10,000; C. V. Sturdeant, president; cotton and wool comforts and batting; 1 set cards.

Philadelphia. Ajax Wool Processing Co., 1822-1832 East Venango street; $100,000; Joseph J. McCloskey, pres.; erected one story warehouse, 60 x 100 ft.; scouring and carbonizing wool.

Philadelphia. Alliance Processing Co.; leased space in mill at Mascher and York streets; coning and winding yarn; also dyeing; A. E. Willgood, ppresident.

Rhode Island, Centredale. Centredale Dye Works; Grover street; dyers of cotton, wool and silk hosiery; capacity 2000 dozen per day; T. Oscar Doyle, proprietor.

Pawtucket. Green Dyeing Co.; $10,000; W. O. Tood, president; dyeing of worsted tops; for Pocasset Worsted Co.; leased part of Richardson Foster Co. plant.

Providence. Parkin Yarn Co.; $50,000; 10 Ethan street; E. J. Clary, pres.; commission skein winding, spooling and twisting.

Providence. Service Dyeing & Winding Co., Inc.; $50,000; 56 Dudley street; Charles Atteridge, treasurer; converters of yarn; piece and yarn dyeing, winding, spooling, etc.

Wisconsin, Sheboygan. M. J. Deeley; wool and cotton batting; custom carding; 1 card, 1 picker and 1 duster.

Sheboygan. Wisconsin Textile By-Products Co.; $50,000; Alfred P. Steffen, president; wool, cotton and jute waste; plant erected.

Enlargements and Improvements

COTTON

Alabama, Alabama City. Dwight Mfg. Co.; picker building, 180 x 80 ft., three stories high, costing $50,000; installed 72 cards with complementary drawing machines, 9,792 spindles, 180 Draper looms, etc.; addition to boiler room; 3 new boilers, 375 horsepower installed.

Anniston. Anniston Mfg. Co.; brown sheetings and drills; added 2 spinning frames, 4 new cards, 1 burnishing machine, 1 stitcher, 4 new slubbers and 1 spooler.

Birmingham. Avondale Cotton Mills; erected four warehouses, each 60 x 150 ft.; two-story addition to finishing room, 40 x 125 ft.

Fairfax. Fairfax Mill; three-story bleachery and cloth room building.

Florence. Ashcroft Cotton Mills; installed 40 Draper looms to replace a similar number.

Huntsville, Abingdon Mills; ducks, drills and osnaburgs; addition to twisting department, 175 x 105 ft., two stories high.

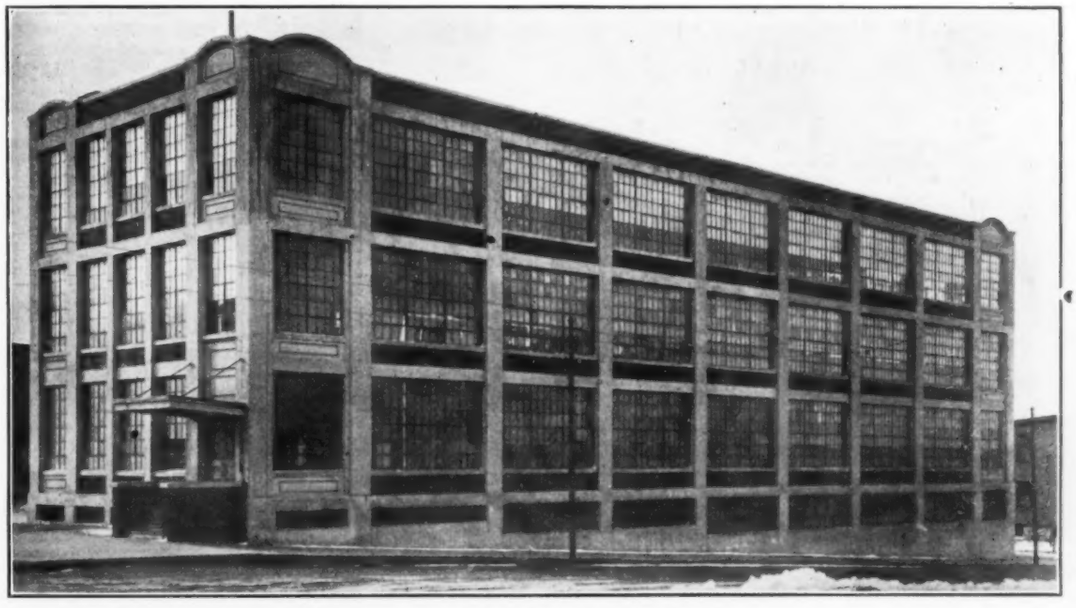
Huntsville. West Huntsville Cotton Mill Co.; installed two new winders, 8 spinning frames and 2 cards.

Piedmont. Coosa Mfg. Co.; mercerized yarns; erected picker room 40 x 100 ft., two stories high; new brick warehouse 60 x 100 ft.; installed 10 new cards.

Roanoke. W. A. Handley Mfg. Co.; new waste mill 216 x 80 ft., two-story and basement, 75 x 72 floor ell; 6,000 new spindles.

Sylacauga. Eva Jane Mill; installed 72 looms.

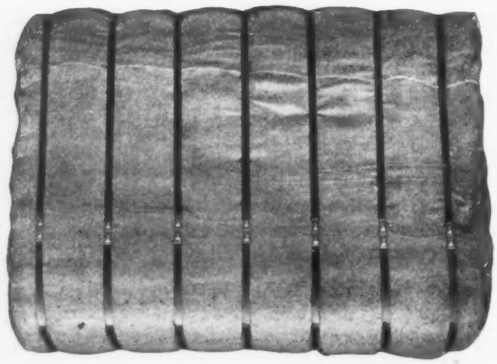
Tallassee. Tallassee Falls Mfg. Co.; sheetings, osnaburgs, duck, rope and twine; new machinery added to weave room of No. 1 Mill.



THE TOP STORY WAS ADDED DURING 1918 TO THIS MILL OF THE BLACK CAT TEXTILES COMPANY AT SHEBOYGAN, WIS. LOCKWOOD, GREENE & CO., CHICAGO OFFICE, ENGINEERS

The Signode System of Baling

Reduces { Shipping Space / Shipping Cost



The Signode System consists of encircling a bale in the press with Special Signode Strap of very high tensile strength and minimum elongation, drawing the strap very tight about the bale and sealing by crimping the overlapped ends of the strap within a metal sleeve called a Signode.

From every point of comparison the SIGNODE SYSTEM is superior to other methods of baling—it is easily and more quickly applied and shows a saving both in material and labor cost.

"Signode System" Guarantees Safety

By its use several feet of Tie to each bale are saved. There are no jagged ends of strap to injure freight handlers. (Our Bale has been approved by the National Safety First Congress.)

SIGNODE TIES DO NOT STRETCH. They have from 60% to 80% greater strength than the ordinary bale tie. Therefore, the bale can be reduced to required density and POSITIVELY HELD. Limited cargo space for overseas shipments makes necessary reducing rebound to a minimum.

Write for full details

Signode System, Inc.

108 West Lake Street, Chicago, Ill.

143 Liberty Street, New York City
1001 Chestnut Street, Philadelphia
49 Federal Street, Boston
10 Tift Street, Atlanta

"SIGNODE SYSTEM"

THIS CUT WAS MADE FROM MY DRAWING

"Uncle Sam" says to use POST CARDS for acknowledgments, etc.

A GOOD PICTURE OF YOUR PLANT

ON YOUR ACKNOWLEDGMENT CARD IS ONE OF THE MANY USES OF MY DRAWING

If a photograph does NOT bring out all of your buildings to advantage

I CAN MAKE A DRAWING THAT WILL

R. J. SHUTTING

Bird's Eye View Artist — CHATTANOOGA, TENN.

SATISFIED CLIENTS IN NINE STATES

TIE YOUR BALES WITH

ACME STEEL BALING TIES AND BUCKLES
STRONGEST—SUREST—QUICKEST TO APPLY

ACME "U" BALE BUCKLES HOLD FAST

Acme cold rolled baling ties are finished with black lacquer and have round smooth edges. Put up in continuous length coils—no rivets.

No. 4 U Bale Buckle Attached

LARGE STOCKS CARRIED IN ATLANTA
Prompt and Efficient Service

Write Now for Samples

ACME STEEL GOODS CO.

CHICAGO
2840 Archer Ave.
ATLANTA
10 Tift St.
NEW YORK
295 Lafayette St.
NEW ORLEANS
Queen and Crescent Bldg.

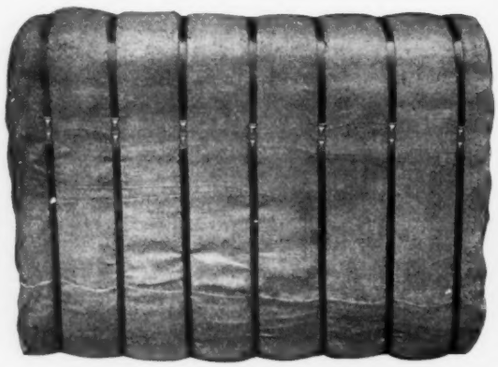


Illustration of Several Patterns of Buckles

Georgia, Athens. Southern Mfg. Co.; addition to No. 1 Mill making structure 200 x 50 ft., with aditional story; No. 2 Mill addition 188 x 125 ft.; weave shed increased to 200 x 25 ft.; office building, first aid department and warehouse, steam equipment, erected, 188 x 100 ft.; slasher room enlarged; 150 looms, 90 spinning frames, 50 carding machines, etc.; costing $175,000; new buildings cost $75,000; weekly output 200,000 yards of cotton cloth mainly for the manufacture of husking gloves.

Berryton. Berryton Mills; installed 10 new cards, bale breaker and conveyor.

Carrollton. Mandeville Mills; adition to mill; 5,000 spindles installed.

Cedartown. Cedartown Cotton & Export Co.; new picker room, 56 x 108 ft.; 36 new cards for double carding installed; two new 60 x 150 ft. warehouses to be erected.

Lafayette. Lafayette Cotton Mills; addition 40 x 100 ft., two stories; 40 new automatic looms, 2,240 ring spindles.

Lafayette. Union Cotton Mills; installed 20 spinning frames, 1 new slubber, 1 intermediate, 2 speeders and complete outfit of new pickers and drawings; also 19 additional frames and 3 warpers.

La Grange. Hillside Cotton Mills; built three-story cloth warehouse.

La Grange. Park Cotton Mills, added 4 spinning frames.

Manchester. Manchester Cotton Mills; addition 100 x 50 ft., four stories, costing $30,000.

Monroe. Walton Cotton Mill; installed 300 automatic looms to replace 316 old looms.

Pelham. Pelham Mfg. Co.; installed 116 new looms to replace old plain looms, 6 new cards.

Scottdale. Georgia Duck & Cordage Mill; added 832 spindles; 2 new twisters, new spooler, 4 drawing frames, 3 speeders, 1 slubber, 2 cards.

Summerville. Summerville Cotton Mills; installed 36 new looms.

Illinois, Chicago. Bauer & Black; addition 75 x 108 ft., seven stories high, costing $40,000.

Chicago. Henry Meyer Thread Mfg. Co.; installed additional winding and coning plant.

Indiana, Cannelton. Indiana Cotton Mills; new weave shed, 132 x 240 ft., one story and basement; added 450 new looms; also cards and slubbers.

Kentucky, Louisville. Louisville Cotton Mills Co.; two three-story aditions, each having 30,000 sq. ft. of floor space; cost $70,000; no new equipment installed.

Louisiana, New Orleans. Lane Cotton Mills Co.; addition, one story high, costing $25,000.

New Orleans. Orleans Cotton Mills, Inc.; addition 140 x 20 ft., three stories high, costing $23,000; equipped with 1,296 spindles; electric drive.

Maryland, Baltimore. Mt. Vernon Woodberry Mills; two additions, one 25 x 22 ft., two stories high; other 32 x 31 ft., four stories; cost $25,000.

Massachusetts, Easthampton. Geo. S. Colton Elastic Web Co.; purchased building to be used as annex—no new machinery.

Fall River. American Printing Co.; cotton opener house, 100 x 40 ft., one story; caustic storage house 73 x 38½ ft., three stories; pump house, 27 x 15 ft., one story; new machinery installed.

Fisherville. Lund Textile Co.; addition 47 x 134 ft., one story high; added 24 Jacquard looms; 2 new warpers, 2 Universal winders and 2 skein winders.

Hyde Park. C. Stohn; two-story addition, 42 x 110 ft.; 50 looms installed.

Lawrence. Arlington Mills; built new pump house, new machine shop and new incinerator plant; operated annex for knitting yarns in leased building for several months.

Lawrence, Katama Mills; two-story addition, 250 x 90 ft.; installed 125 looms; brick storehouse, two stories high; building 46 x 115 ft. for office and garage.

Walpole. Lewis Mfg. Co.; two floors added, one 75 x 125 ft., other 60 x 120 ft.; installed 12 additional folding machines.

New Hampshire, Manchester. Stark Mills, International Cotton Mills; additional story to dyehouse, 44 x 81 ft.

New Jersey, Brunswick. Johnson & Johnson; purchased plant of the Norfolk & New Brunswick Hosiery Co.; machinery sold; new owners operating mill as branch plant for absorbent cotton, etc.

Passaic. Manhattan Rubber Mfg. Co.; new building 60 x 208 ft.; cotton fiber and mill hose.

Paterson. Samuel Holt; new two-story mill, 40 x 80 ft., on East Railway and California avenues; added 12 jacquard looms, making the equipment 34 looms. (Moved entire plant to new mill).

New York, Troy. Troy Yarn Co.; moved plant to Adams and River streets.

North Carolina, Bessemer City. Huss Mfg. Co.; increased capital to $250,000; installed 2,500 spindles and 48 looms.

WASH AND BLEACH ROOM ON FOURTH FLOOR, BLACK CAT UNDERWEAR MILLS

Lowell. Tremont & Suffolk Mills; new weave shed, 400 x 180 ft.

Methuen. Acadia Mills; cotton goods; built 100 x 300 ft. building for rearrangement of machinery.

New Bedford. Beacon Mfg. Co.; addition 40 x 60 ft., one story high.

New Bedford. New Bedford Cordage Co.; one-story 72 x 90 ft. storehouse.

New Bedford. New Bedford Textile Co.; new spinning mill, 88 x 113 ft., two stories high; 30 new cards and complementary machinery installed; one-story boiler house erected, 18 x 25 ft.

Cedar Falls. Sapona Cotton Mills; added 1 looms.

Charlotte. Barnhardt Mfg. Co.; two-story warehouse, 100 ft. long.

Charlotte. Chadwick-Hoskins Co.; addition to Mill No. 5, 40 x 50 ft., one story; 1 new picker, 10 cards and 12 deliveries of drawing.

Cherryville. Cherryville Mfg. Co.; one-story addition 100 ft. long; 5,000 additional spindles installed.

Cherryville. Vivian Cotton Mills; addition 64 x 54 ft.; installed 2,000 new spindles and accompanying machinery; electric drive.

Concord. Roberta Mfg. Co.; added 2,000 spindles.

Cornelius. Cornelius Cotton Mills; large addition to weave shed; 50 looms installed.

Cumberland. Necronset Mills, Inc.; J. Frederic Houston, pres.; addition 100 x 56 ft.; 5,000 additional spindles and complementary machinery.

Davidson. Delburg Cotton Mills Co.; addition to plant; installed 2,680 additional spindles.

Forest City. Florence Mills; addition 200 x 120 ft.

Gastonia. Parkdale Mills, Inc.; increased capital to $600,000; addition 150 x 80 ft.; added 6,000 new spindles; electric drive.

Gastonia. Pickney Mills; added 3,200 spindles; new office building.

Greensboro. Pomona Mills, Inc.; added 100 new looms.

Hickory. Hickory Spinning Co.; addition 75 x 300 ft., equipped with 5,000 spindles and accompanying machinery.

Hope Mills. Rockfish Mills, Inc.; cotton yarns; added 12,480 spindles.

King's Mountain. Pauline Mills; table covers and damasks; added 70 looms and 2,376 spindles.

King's Mountain. Phenix Mills Co.; added 100 new looms, 6 cards, 9 spinning frames, 1 opener and 2 pickers; erected large warehouse.

Landis. Corriher Mills Co.; addition 75 x 68 ft.; 2,268 new spindles; electric drive installed.

Landis. Linn Mill Co.; increased capital to $250,000; erected Mill No. 2, 300 x 100 ft.; added 6,000 spindles; electric drive.

Marion. Cross Cotton Mills; increased capital to $300,000; addition 301 x 78 ft., one story; equipped with 4,032 ring spindles.

Mayworth. Mays Mills, Inc.; cotton yarns; added 20,000 ring spindles and complementary equipment.

Mount Holly. Nims Mfg. Co.; increased capital to $100,000; added 500 twisting spindles.

Norwood. Norwood Mfg. Co.; addition 100 x 75 ft.; added 25 cards, 20 roving frames and complementary combers.

St. Pauls. St. Pauls Cotton Mill Co.; new office building 50 x 150 ft. and packing and shipping room added.

Tarboro. Hart Cotton Mills; added 3 Lowell cards, 4 fly frames, 4 twisters with 224 spindles each, 1 spooler, 38 Whitin spinning frames with tape drive, 288 spindles to the frame.

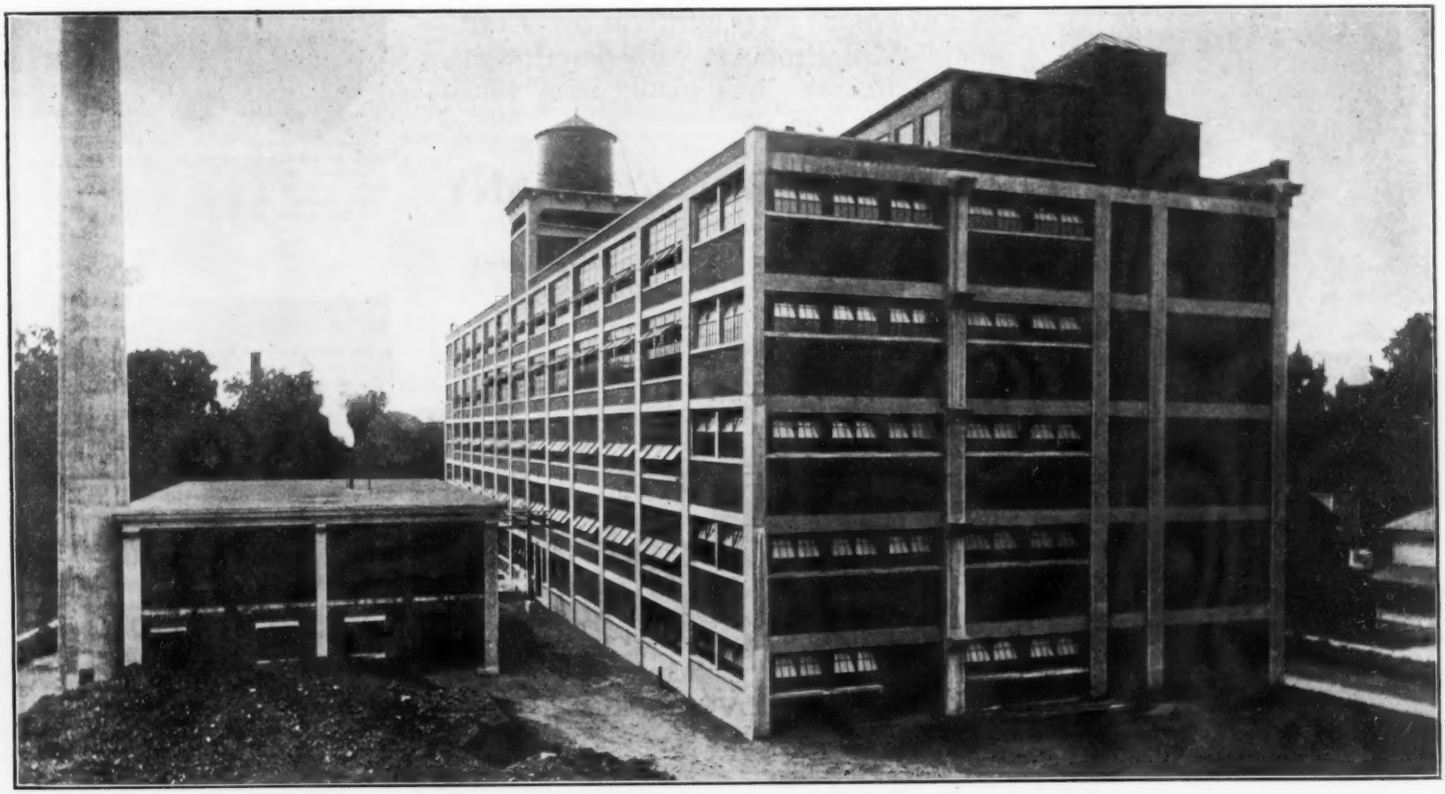
Winston-Salem. Arista Mills Co.; added 2,000 spindles to equipment; installed 540 hp. engine, 2 new boilers.

Ohio, Columbus. Ohio Penitentiary; added 1,140 ring spindles, for spinning cotton yarns from 9s to 20s; 8 looms and 2 sets cards added to woolen department.

Oklahoma, Guthrie. Pioneer Cotton Mills; capital increased to $300,000; addition 100 x 122 feet; 80 new looms.

Pennsylvania, Philadelphia. Nicholas-Biliger Webbing Co.; moved to new plant at 2636-38 North Hutchinson street.

Philadelphia. Edw. B. Steinmetz Co., Inc.,



POWER HOUSE AND REAR AND SOUTH SIDE OF BLACK CAT UNDERWEAR MILL, BENNINGTON, VT.
LOCKWOOD, GREENE & CO., CHICAGO OFFICE, ENGINEERS; TURNER CONSTRUCTION CO., NEW YORK, CONTRACTORS

TRADE MARK "Leatheroid" REGISTERED

Why "Leatheroid" Carriers and Containers are in Such Demand

Leatheroid No. 1 Seamless Roving Can

Patented "Leatheroid" rolled top, rolled in and under two and one-half times, having no steel ring underneath the roll to break the can. Solid steel bottom, steel chime, 6 in. kicking band. We guarantee this can in every respect.

The present popularity of "Leatheroid" Products is due, primarily, to the satisfaction they have given and are giving in both large and small mills throughout the United States. Leatheroid Cans, Cars, Boxes, etc., possess the required combination of great strength and light weight that makes them ideal as mill containers.

The strong "Leatheroid" fibre is heavily reinforced at the places which our experience has shown us are subjected to the greatest wear and strain. "Leatheroid" is smooth; the most delicate yarn, cloth or other material may be placed in these containers without being injured.

"Leatheroid" Containers may be had in a variety of shapes and sizes to fill every need in the modern mill. Our special Booklet No. 10 gives a full list of "Leatheroid" Mill Products with descriptions, prices, etc. We will gladly send you a copy.

Leatheroid No. 2 Seamless Roving Can

Latest improved construction, polished steel metal top rim, solid steel bottom, steel chime, 6 in. kicking band.

Leatheroid No. 2 Steel-Clad Car

This is the Improved "Leatheroid" Steel-Clad Car. Steel over wood top rim, steel bottom band, eliminating all wood on wearing surfaces. Self-oiling wheels. Best car on the market for service.

Leatheroid No. 3 Mill Car

This is the Standard "Leatheroid" Warehouse car, with self-oiling wheels. Steel over wood top rim, hard wood centre bands, ribbed steel bottom band. Strongly built and well protected.

ROGERS FIBRE COMPANY

Successor to Leatheroid Mfg. Co.

121 Beach Street, BOSTON

43 W. 16th Street, NEW YORK

1024 Filbert Street PHILADELPHIA

(Leatheroid Sales Division)

Leatheroid No. 3 Mill Box

This is a standard box for mills, strong and well constructed, with steel over wood top rim, hard wood shoes with special steel protecting corner angles.

Standard Boxes made straight side; Tapered if so ordered.

"Leatheroid" Combination Doffing Car

Made with one box fast, one loose. Boxes made all fibre (No. 3) or steel clad (No. 2). Solid platform. Self-oiling wheels.

"Leatheroid"

Containers are sold by Leading Mill Supply Houses Everywhere

mercerized cotton yarns; leased additional space at Hancock street and Columbia avenue; installed cone-winding machines.

Philadelphia. Superior Thread & Yarn Co.; one-story addition to boiler house, 22 x 36 ft.

Philadelphia. Wabash Mills Co., Inc.; built new boiler house; 2 new 100-hp. boilers added.

Rhode Island, Pawtucket. Central Warp Co.; added 5 warpers and 5 warp balling machines.

Pawtucket. Windsor Webbing Co.; 40 x 40 ft. addition for storage.

Woonsocket. Woonsocket Falls Mills; purchased adjoining property to be used for storage.

South Carolina, Carhartt. Hamilton Carhartt Cotton Mill No. 2, added 104 looms and 3,500 spindles.

Darlington. Darlington Cotton Mills, added 36 drawing frames and 21 cards.

Edgefield. Addison Mills, changed from print cloths to gauze and added 6,000 spindles.

Inman. Inman Mills, fine sheetings; added 100 looms.

McColl. Marlboro Cotton Mills; erected new picker house; 225x100 ft. warehouse; finishing dept. to No. 4 mill; addition for twisters and looms at No. 6 mill; new power plant for No. 5 mill.

Newberry. Mollohon Manufacturing Co.; print cloths and sheetings; replaced 368 looms with new; added 20 looms; built addition to care for 5,000 spindles and 272 looms, part to be installed this year.

Newberry. Newberry Cotton Mills; added 3,000 spindles and 24 looms.

Spartanburg. Beaumont Manufacturing Co.; cotton goods and yarns; added 648 ring spindles and 54 looms.

Spartanburg. Spartan Mills, print cloths and sheetings; changed from steam to electric power.

Texas, Belton. Belton Yarn Mills; addition 120 x 80 ft.; 3,000 new spindles.

Corsicana. Corsicana Cotton Mills; ducks; replaced 150 looms with new.

Gonzales. Gonzales Cotton Mills; ducks, sheetings; added set of pickers; 18 cards, 10 drawing frames, 2 fly frames, 5 spinning frames, doubling equipment.

Hillsboro. Hillsboro Cotton Mills; ducks; erected 56 x 60 ft.; 126 x 114 ft., 38 x 57 ft. and 30 x 60 ft. additions; added 4,000 spindles and 100 looms.

West. Brazos Valley Cotton Mills; ducks and osnaburgs; 18 new looms to replace old machines.

Virginia, Danville. Riverside & Dan River Cotton Mills; erected $150,000 dormitory; added a story to mill building; added 10,000 spindles and 30 cards to lower mill and 15,000 spindles to upper mill; built 75 x 130 ft. four-story warehouse.

Lynchburg. Lynchburg Cotton Mills Co.; brown sheetings; $300,000 addition; when completed will add 10,400 spindles and 160 looms.

WOOLEN

Maine. Dexter. Wassookeag Woolen Co.; men's wear; addition 60 x 70 ft., two stories high, for boiler house and picker room; new boiler installed.

Houlton. Houlton Woolen Mill; 12 new looms, 1 set 60 x 60 cards, mixing picker and two 280 spindle mules. (Discontinued knitting.)

Kennebunk, Goodall Worsted Co.; built new spinning mill.

Sangerville. Old Colony Woolen Mills; new machine shop, 70 x 26 ft.; installed large generator to furnish lights for company's mills.

Maryland. Oella. W. J. Dickey & Sons, Inc.; plant destroyed by fire with exception of dyehouse and boiler room; loss $500,000; new mill erected, 156 x 92 ft., four stories, 135 x 60 ft., four-story finishing mill; boiler house, 47 x 29 ft.; 103 x 60 ft. dyehouse; cost $260,000; 3,990 new spindles, 60 looms, costing $225,000; electric drive.

Massachusetts. Adams. Adams Woolen Mills, Inc.; addition to picker room, 32 x 40 feet, and one 100 x 30 feet to finishing room.

Blackinton. Blackinton Co.; new finishing mill erected, 64 x 120 ft., three stories high; cost $80,000; no new machinery installed.

Caryville. Taft Woolen Co.; one-story addition to power house, 17 x 80 ft.

Charlton City. Charlton Woolen Co.; picker building, 130 x 72 ft.

Cherry Valley. Olney Woolen Mills Co.; one-story addition to picker house, 27 x 30 ft.; installed two rag pickers and one mixing machine; erected 30 x 50 addition to house large drying machines; manufactures blankets and white flannels.

Dalton. Sawyer, Regan & Co.; addition to main mill; 12 new broad looms installed.

East Brookfield. Daniels Mfg. Co.; addition 105 x 176 ft.; for weaving, spinning, spooling and winding; dyehouse erected; Rockville, Conn., branch closed and machinery moved here.

Franklin. Ray Fabric Mills, horse blankets; purchased additional building; added 2 pickers, 4 sets double shoddy cards, 10 sewing machines.

Hudson. Wottoquottoc Worsted Co.; new dyehouse, 75 x 90 ft., one story.

Jefferson. Jefferson Mfg. Co.; new weave shed, 118 x 85 ft., two stories; 150 narrow looms installed.

Lawrence. Washington Mills, American Woolen Co.; scouring plant, 500 ft. long, eight stories; reinforced concrete wool storehouse, 170 x 160 ft., ten stories.

Lowell. Merrimack Woolen Corp.; three-story addition, 70 x 63 ft.; one story added to machine shop.

Maynard. Assabet Mills, American Woolen Co.; addition 400 x 50 ft., five stories; 19 new spinning frames installed.

Medford. American Woolen Co. purchased plant of Stone-Timlow Co.; new storehouse erected 100 x 200 ft., five stories; another building 100 x 100 ft., three stories; scouring, carbonizing, dusting, carding, garnetting and dyeing machinery installed; mill equipped with 8 sets of cards; to be used as waste mill and for reworking stock; H. M. Payne, agent and buyer; G. M. Walker, supt.

Medford. Medford Woolen Mfg. Co.; increased capital to $200,000; erected storehouse, 60 x 150 ft.; two-story addition for office purposes.

Medway. Medway Mfg. Co.; mill destroyed by fire; rebuilt.

Middleboro. Nemasket Worsted Mills; addition 12 x 16 ft. for yarn dryer, and a 16 x 72 ft. building to replace old structure; new fulling mill and one yarn dyeing machine installed.

North Adams. Strong, Hewat & Co.; new dyehouse, 75 x 150 ft., two stories high.

North Andover. Brightwood Mfg. Co.; installed 12 knitting machines for novelty dress goods; erected new weave shed 93 x 108 ft., two stories high; cost $75,000.

Northboro. Whittaker & Bacon; carbonizing, etc.; built 136 x 40 ft. mill; 136 x 40 ft. addition and 160 x 52 ft. carbonizing plant. Increasing capacity to 20,000 pounds daily. Two steel storehouses built. Chapinville plant destroyed by fire.

Saugus. U. S. Worsted Co.; added 12 sets of cards and 2,520 spindles.

Saxonville. Saxonville Mill (Roxbury Carpet Co.); one story addition, 75 x 75 ft.

South Boston. William White Wool Dusting Mill; addition for wool scouring, 53 x 110 ft.

Uxbridge. S. F. Scott, Elmdale Mill; new picker house, 62 x 42 ft.; no new machinery installed; additional story to old picker house.

Warren. Sayles & Jenks Mfg. Co.; purchased old plant of the Bradford Yarn Mill, and operating same.

Webster. Merritt Woolen Co.; addition 130 x 40 ft., three stories high.

West Stoughton. Stoughton Mills, Inc.; one story addition, 120 x 60 feet; to be equipped with pickers and cards.

Worcester. Jamesville Woolen Mill Co.; increased capital to $100,000; added four looms to equipment; electric power installed.

New Hampshire, Ashuelot. Hampshire Woolen Co.; addition to main mill; installed 4 spinning mules; electric drive.

Dover. Sawyer Mills, American Woolen Co.; two stories added to one section of Upper Mill; another story added to old mill; new cards installed.

New Jersey, Camden. B. F. Boyer Co.; worsted yarns; one story warehouse, 72 x 102 ft.

Camden. Howland Croft, Sons & Co.; three story addition, 60 x 70 ft., for warehouse.

New York, Auburn. Auburn Woolen Co.; new one story dyehouse, 30 x 100 ft.

Cohoes. United Waste Mfg. Co.; damaged by fire and rebuilt.

Salamanca. Midland Wool Combing Co.; addition 180 x 50 ft.; installed 2 combs, 3 cards.

Utica. Globe Mills, American Woolen Co.; three story addition, 285 x 100 ft.; office building 50 x 25 feet.

North Carolina, Winston-Salem. The Chatham Mfg. Co.; added 20 new looms, 2 sets of cards.

Ohio, Cleveland. Cleveland Worsted Mills Co.; increased capital to $20,000,000; new yarn mill, 63 x 164 ft., three stories high; equipped with new woolen machinery; daily output from 3,000 to 5,000 pounds.

Cleveland. Collings, Taylor Co.; fire destroyed dyehouse, causing loss of $40,000; rebuilt.

Cleveland. Colonial Woolen Mills Co.; increased capital to $200,000; new warehouse, 45 x 80 ft.

Cleveland. The National Woolen Co.; addition 131 x 70 ft. to warehouse; new boiler house, 82 x 52 ft., with 2,350 h.p. Wickes boilers.

St. Mary's. St. Mary's Woolen Mfg. Co.; added 10 looms and 1 fulling mill; increased capital to $400,000.

Pennsylvania, Bridgeport. J. Charles Nice, Jr., Inc.; woolen yarns; added story to mill building and installed 1,600 new spindles.

Clifton Heights. Kent Manufacturing Co.; new 60 x 47 feet boiler house; 60 x 80 feet engine house.

Philadelphia. Bellevue Worsted Mills; one-story power house, 27 x 85 feet.

Philadelphia. Wilson H. Brown, Inc.; purchased plant at Lena and Armat streets, Germantown; additions and alterations made; will move thereto later on.

Philadelphia. Penn Worsted Co.; one-story addition, 25 x 85 feet.

Philadelphia. Philadelphia Felt Mfg. Co., Inc.; additions 22 x 36 feet, two stories; 29 x 59 feet; 32 x 45 feet and 21 x 23 feet; no machinery added.

Philadelphia. Platt Bros.; rebuilt yarn mill destroyed by fire.

Philadelphia. Quaker Mills; installed 67 additional looms.

Philadelphia. Mark D. Ring Son & Co.; consolidated plant at Third and Somerset streets with one at Sixty-ninth street and Haverford avenue; added 1 set of cards; one-story addition to engine house, 17 x 40 feet.

Philadelphia. Louis Walther Mfg. Co., Inc.; three-story addition 60 x 140 feet; finishing machinery installed.

Philadelphia. Wishart Worsted Mill; added 12 broad looms.

Philadelphia. S. D. Worthington & Son; added 6 broad looms.

Pittsburgh. McGraw Wool Co.; moving equipment here from Wallingford branch; replaced 4,000 spindles with new machinery and installed all plant in new building.

Rhode Island, Bridgeton. Premier Worsted Mills changed part of its machinery from steam to electric power.

Chepachet. Blackstone Woolen Co.; purchased entire building of which it formerly occupied a part and made alterations and small additions.

East Greenwich. Greenwich Mill, woolen and worsted men's wear and dress goods; 90 x 108 feet addition; 60 new looms.

Mapleville. Coronet Worsted Co.; built new stockhouse and improved plant.

Pawtucket. Lorraine Mfg. Co., cotton and worsted dress goods; 41 x 213 and 157 x 32 feet additions built for worsted looms.

Wakefield. Wakefield Mills Co.; woolen goods; added 8 looms.

Woonsocket. Alsace Worsted Co.; took over plant of Lowland Worsted Co. to use in conjunction with present mill; built 3-story addition to main mill.

Woonsocket. Falls Yarn Mills; woolen and merino yarns; erected 50 x 140 feet picker house and storehouse; added 1,500 spindles.

Woonsocket. Glenark Worsted Co. built two-story addition 58 x 196 feet; no new machinery.

Woonsocket. Guerin Spinning Co.; woolen and merino yarns; 70 x 125 feet storehouse.

Woonsocket. Montrose Worsted Co.; 18 x 55 feet addition built; no new machinery.

Woonsocket. Woonsocket Spinning Co.; woolen and merino yarns; erected 128 x 68 ft. addition; added 1 set of cards and new spindles.

South Carolina, Columbia. F. T. Parker Co.; press cloths for oil mills; added 3 looms and 1 worsted comb; erected 100 x 200 addition.

Utah, Provo. Knight Woolen Mills; plant destroyed by fire; started again with 3 sets of cards and accompanying machinery for making woolen cloth, installed in a building not burned; burned buildings not to be reconstructed this year.

Vermont, Bennington. Holden, Leonard Co.; fine woolens; four-story addition erected; added 3 sets of cards and 40 looms and 5 mules.

Ludlow. Jewell-Brook Woolen Co.; kerseys, thibets; built 30 x 66 ft. addition; added 1 set cards.

Springfield. John T. Slack Corp.; built addition for dry carbonizing of woolen rags; added 6 carbonizing machines and 6 washing machines.

Washington, Washougal. Washougal Woolen Mills; addition finished to house 16 looms, 944 spindles and 4 cards, moved from Marysville (Cal.) Woolen Mills.

West Virginia, Martinsburg. Herkeley Woolen Mills; 160 x 156 ft. addition built; 33 looms and new spinning and carding machinery to increase capacity 50 per cent. added.

Martinsburg. Dunn Woolen Co.; woolen cassimeres; 50 x 92 ft. addition; 12 new looms, 720 spindles and 2 sets of cards added.

Wisconsin, Milwaukee. Isaac Barnett Woolen Mills Co.; custom picking, garnetting, etc.; 50 x 75 ft. dye house erected.

Canada, Ontario, Almonte. William Thorburn; flannels; mill burned and rebuilt.

Baden. Baden Woolen Mills; blankets, tweeds, etc.; plant destroyed by fire.

Carleston Place. Hawthorn Mills, Ltd.; blankets, hosiery, towels, etc.; built three-story 132 x 80 ft. addition and picker house 80 x 80 ft.; bleach house 90 x 90 ft.

Toronto. Barrymore Cloth Co.; erected three-story addtiion, 60 x 240 ft., for khaki cloth (subsidiary of Toronto Carpet Mfg. Co.).

KNIT

California, Berkeley. J. J. Pfister Knitting Co.; 7 new knitting machines added to equipment.

Delaware, Wilmington. Glen Hosiery Co.; plant destroyed by fire; rebuilding.

Georgia, Dalton. Dalton Hosiery Mills, increased capital from $25,000 to $50,000; erected new concrete mill, 120 x 60 ft., three stories high; added 40 new knitting machines.

Douglasville. Douglas Hosiery Mills; erected new mill, 100 x 100 ft., three stories high, costing $15,000; 125 knitting machines; new dyeing machinery; 50 h. p. steam plant.

Rossville. Richmond Hosiery Mills; increased capital from $10,000 to $50,000; added 6 spinning frames.

Illinois, Belleville. Belleville Hosiery Mills; increased capital to $200,000; erected six-story mill; increased capacity to 2,000 dozen hose per day.

Effingham. Chester Knitting Mills; seamless hosiery; erected 50 x 100 building; 2,000 dozen hose daily capacity. (Branch of St. Louis, Mo.)

Indiana, Goshen. Rock Run Mills; addition 70 x 85 ft., two stories, costing $80,000; 1,200 new spindles; woolen yarn department doubled.

Kentucky, Paducah. Paducah Hosiery Mills; addition 60 x 100 ft., two stories high; 50 new knitting machines.

Louisiana, New Orleans. National Hosiery Mills; erected new mill and moved thereto, adding 20 knitting machines.

Massachusetts, Malden. Malden Knitting Mills; erected new spinning mill; installed 8 sets of cards, 3,000 spindles.

Winchendon. Wye Knitting Mills, Inc.; installed plant for the manufacture of bathing suits; built addition and added new machinery.

Michigan, Bay City. American Textiles, Inc.; installed additional machinery; addition erected, 60 x 200 ft., of steel and glass, for manufacturing and shipping purposes.

Detroit. Detroit-Alaska Knitting Mills; three-story addition; 75 knitting and 10 sewing machines installed.

Grand Rapids. Grand Rapids Underwear Co.; three-story addition; increased equipment to 125 sewing and 35 knitting machines.

Grand Rapids. Sanitary Knitting Co.; increased capital to $40,000; finishing department eniarged, several additional flatlock machines installed; cutting department also extended.

Williamston. New Way Knitting Co.; installed 75 additional knitting, 26 sewing machines and finishing machinery.

New Jersey, Beverly. Beverly Underwear Co.; two-story addition, 60 x 150 ft.; installed 20 knitting and 40 sewing machines.

New York, Amsterdam. Julius Kayser & Co.; four-story mill, 100 x 200 ft., costing $125,000.

Amsterdam. The Morris Mills; purchased three-story brick building and power plant; will be known as Mill No. 7; building remodeled and machinery installed; men's ribbed worsted underwear, product of No. 7 Mill.

Broadalbin. Broadalbin Knitting Co., Ltd.; increased capital to $500,000; addition to main mill, 90 ft. long; new office building; men's flat underwear, union suits and cloth for the glove trade.

Brooklyn. American Knitting Works; extensive additions made to equipment; now operating 45 knitting and 24 sewing machines; sweater coats and sweaters.

Brooklyn. Antic Knit Goods, Inc.; increased equipment to 6 knitting and 8 sewing machines.

Brooklyn. Arctic Knitting Mills, 2,433 Myrtle avenue; children's and ladies' sweaters, toques, scarfs, etc.; 25 knitting and 25 sewing machines. (Removed plant to Glendale, L. I., and added 15 knitting machines.)

Brooklyn. Ess-Arr Knitting Mills, Inc.; increased capital to $250,000; equipment increased to 125 circular, 20 flat and 6 spring needle knitting machines and 75 sewing machines; sweaters, bathing suits, infants' goods.

Brooklyn. Julius Kayser & Co.; one seven-story addition, 65 x 95 ft., and a two-story addition, 145 x 65 ft.

Brooklyn. Simon Knitting Mills; sweaters and bathing suits; installed 7 additional knitting and 4 sewing machines; intend to double equipment by 1919.

Brooklyn. Waitzfelder Braid Co.; increased capital to $90,000; installed machinery for manufacturing fancy knit goods and women's fiber and worsted sweaters; 50 sewing and 35 additional knitting machines.

Cohoes. Electric Knitting Co., Inc.; increase capital to $20,000; installed 25 additional knitting machines.

Elmira. Campbell Knitting Mill Co.; established finishing department at 231 West Water street; initial equipment 30 machines will be increased to 60 later; women's and children's underwear.

Gloversville. Gloversville Knitting Co.; two-story addition, 69 x 185 ft.; equipped with 1,728 spindles for woolen yarns; storehouse erected, 45 x 150 ft., two stories.

Gloversville. Politsch & Frye; silk jersey for gloves, underwear and hosiery; moved plant to 120 West Eighth avenue.

Mohawk. Elastic Spring Knit Corp.; four-story addition, 50 x 124 ft.; equipped with 2 sets of 48 x 50-inch cards and 2 300-spindle mules.

New York. Simon Ascher & Co., Inc.; erected five-story mill at 134th street and Third avenue; all machinery moved from old plant at Glendale, L. I.

New York. Knitwear Mfg. Co.; sweaters; 114 Fifth avenue; added 15 knitting machines and 9 sewing machines.

New York. Palm Knitting Co., 140 West 22d street; moved to 106 Grand street; installed 10 additional knitting and 1 sewing machine.

Sidney. Julius Kayser & Co.; brick boiler house, 40 x 40 ft.

Syracuse. Oak Knitting Co.; increased capital to $500,000; three-story addition, 60 x 120 ft.; installed 7 sets of woolen cards.

Utica. Frisbie & Stansfield Knitting Co.; additional story to mill; 54 x 154 ft. (No new machinery to be installed).

Utica. Monarch Knitting Co., Ltd.; new dyehouse for dyeing wool, cotton, silk and worsted yarns, etc.; boiler room and storage house, costing $75,000.

Utica. Ross-Hogan Knitting Corp.; increased capital to $100,000; additional machines installed making equipment 50 knitting and 150 sewing machines.

Utica. Utica Knitting Co.; additional story to No. 1 mill, 40 x 70 ft., and to No. 4 mill, 28 x 80 ft.

Waterford. Waterford Knitting Co.; erected one-story building for power house; equipped with machinery for electric drive.

North Carolina, Burlington. Southern Hosiery Mills, Inc.; erected new mill; and moved machinery; added 75 knitting machines.

Charlotte. Defiance Sock Mills, Inc.; new one-story dyehouse, 60 x 25 ft.

Connelly's Springs. Klison Hosiery Mills, Inc.; added 125 latch needle knitting machines; fire in plant caused loss of $15,000 to machinery and stock.

Durham. North State Knitting Mills; increased capital to $150,000; enlarged floor space; added 390 knitting machines.

Gastonia. Standard Knitting Mills, Inc.; added dyeing and finishing plant.

Goldsboro. Durham Hosiery Mills, Inc.; built new mill known as Mill No. 5; misses' hosiery; 75 knitting machines; electric drive.

Hickory. Hickory Hosiery Mills, Inc.; built 100 x 50 ft. addition and added 100 knitting machines.

Mooresville. Mooresville Cotton Mills; installed 20 knitting machines in mill No. 1, for men's half hose; dyeing and finishing plant added.

Newton. Fidelity Hosiery Mills Co.; installed additional machines.

Wilmington. People's Hosiery Mills; increased capital to $200,000; four-story mill, 100 x 50 ft.

Winston-Salem. Carolina Mills Co.; cotton hosiery; erected new mill, 77 x 113 ft., three stories; added 10 knitters.

Ohio, Cleveland. Federal Knitting Mills Co.; erected new mill, 120 x 150 ft. on Detroit avenue; increased capital to $1,500,000; added 50 knitting, 55 sewing machines.

Cleveland. Lion Knitting Mills Co.; increased capital to $125,000; added 31 knitting machines.

Piqua. Piqua Hosiery Co.; increased capital to $500,000; purchased five-story building for storage and manufacturing purposes; added knitting and sewing machines.

Pennsylvania, Auburn. Auburn Knitting Mills, 40 x 60 ft. addition to warehouse.

Reading. Regal Hosiery Co.; leased additional space and added 15 knitting machines.

Reading. Value Hosiery Co.; added 28 knitting machines and 3 loopers.

Shoemakersville. Merit Underwear Co.; purchased new building; added 12 knitting and 13 sewing machines.

West Leesport. Leesport Knitting Mills; built small addition and added 10 sewing machines.

Rhode Island, Central Falls. Blackstone Stocking Co.; erected additional story to mill.

Pawtucket. Lebanon Mill Co.; knit goods; erected 80 x 100 ft. addition, three stories high.

Woonsocket. Gold Mark Knitting Co.; puttees, bathing suits, etc.; moved into new 110 x 60 ft. mill building; kept old mill for storage purposes.

Tennessee, Knoxville. Ashe Hosiery Mills; added 25 knitting machines.

Maryville. Ideal Hosiery Mills; half hose; added 50 knitters.

Virginia, Pulaski. Paul Knitting Mills; built 62 x 32 ft. dye house, 125 x 40 ft. finishing plant, 25 x 40 ft. warehouse, 18 x 36 ft. boiler house; added machinery for finishing 1,000 dozen pairs of hose a day.

Washington, Seattle. Saxony Knitting Co.; moved to new building at Fourth avenue and Virginia street; added new line of lumbermen's socks; installed machinery for that purpose.

Wisconsin, Janesville. Lewis Knitting Co.; three-story addition built; new knitting machines added.

Milwaukee. Reliable Knitting Works; fancy knit goods; added 5 knitting machines; capital stock increased to $100,000.

Milwaukee. Van Dyke Knitting Co.; hosiery and underwear; added two stories to mill; installed 15 knitting and 100 sewing machines.

New Jersey, Passaic. Gotthard, Katterman; equipment increased to 82 looms; broad silks.

Passaic. Passaic Silk Co., Ramapo avenue; installed 15 additional looms. (Was out of business for about a year.)

Paterson. Arcadia Silk Co., Inc.; moved to 164 Ward street; added 10 looms; broad silks.

Paterson. Atlantic Silk Co.; added 36 looms.

Paterson. Bell Silk Co., Inc.; building in which plant was located destroyed by fire; moved to 140 Broadway; installed 20 additional looms.

Paterson. Charles E. Bloom Silk Co.; moved to 164 Ward street; installed 10 additional broad silk looms.

Phillipsburg. Ingham & Tirrell; leased building adjoining plant and installed machinery, increasing capacity from 50 to 70 per cent.

West New York. Stohn Bros., 687 Harrison place; installed additional machinery doubling equipment of plant.

New York, Middletown. Niagara Silk Mills; leased building and installed machinery for finishing "Niagara Maid" silk gloves, hosiery and underwear.

Newburgh. Harrison & Gore Silk Co.; installed 30 broad silk looms to replace old-style looms.

New York. T. Gordon; installed 4 additional silk winders, 2 doublers and 300 throwing spindles for artificial silk. (Office moved to 10 West 19th street).

New York. H. Kram & Co.; added 26 looms.

Oneonta. Quality Silk Mills, Inc.; silk and chamois gloves, silk hosiery and underwear; destroyed by fire, causing loss of $80,000; purchased new mill, three stories high with power house; new equipment installed.

Webster. Webster Dye & Yarn Mills; addition 60 x 40 ft., three stories high; new machinery installed.

Wilkinsonville. Anco Dyeing & Finishing Co.; new storehouse 150 x 175 ft.; cost $25,000; (Weaving machinery removed to plant of John H. Meyer Tire Duck Co., Newark, N. J.)

New Hampshire, Milford. Milford Manufacturing Co.; linens, canvas, etc.; addition 50 x 150 ft.; 100 new looms and winding machinery installed.

New Jersey, Bridgeton. Martin Dyeing & Finishing Co.; new 37,000 square foot storage house.

Paterson. Barbour Flax Spinning Co., Inc.; new dyehouse, 61 x 40 ft., one story; no additional machinery installed.

Paterson. Empire Piece Dyeing Co.; erected 60 x 125 foot addition.

Paterson. Main Winding & Warping Co.; installed 20 broad silk looms.

Paterson. Star Silk Dyeing Co.; one story addition to dyehouse.

Union Hill. J. J. Sussmuth; installed 7 additional winders, 13 warpers and 1 coner.

New York, Brooklyn. Eastern District Dye Works; three story brick addition.

Brooklyn. Superior Piece Dye Works, Inc.; purchased three story building in Greenpoint and moved plant there; additional machinery installed.

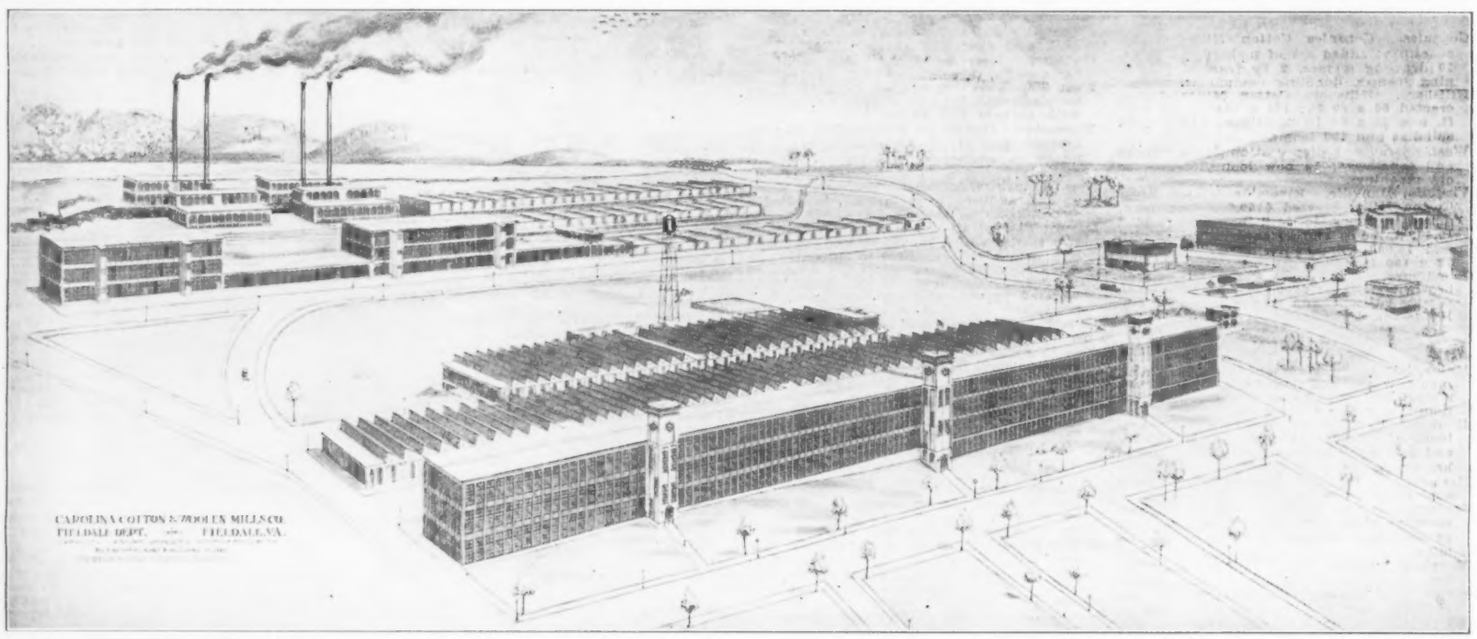
Lockport. Empire State Linen Mills, Inc.; addition to bleachery, 35 x 50 ft.

New York. Chelsea Silk Dyeing Co.; (Moved to larger quarters at 585 Hudson street.)

New York. M. Geller; moved to 214 East 22d street; dyer and finisher; capacity of plant doubled.

New York. Stienen Dyeing Co., Inc.; moved to 342 West 14th stret; capacity increased to 5,000 pounds daily.

Ohio, Piqua. Warden's Bleaching & Dyeing Plant; installed 15 knitting machines for knitting glove wristlets; (Formerly Piqua Bleachery Co.)



FIELDALE COTTON AND WOOLEN MILLS DEVELOPMENT AT FIELDALE, VA. COMPLETE PLANT TO HAVE A TOTAL OF 250,000 SPINDLES AND 6,000 LOOMS, WITH BLEACHING AND FINISHING PLANT. F. P. SHELDON & SON, PROVIDENCE, R. I., ENGINEERS

Bethlehem. Lennox Knitting Mills; infants' hosiery; purchased by Henry Scheier; moved to 325 North Main street; equipment increased to 18 knitting machines.

Chambersburg. Chambersburg Hosiery Co.; increased capital to $150,000 and added 32 knitters and 6 loopers.

Dillsburg. Dillsburg Mfg. Co.; added 24 knitting machines.

Easton. Chipman Knitting Mills; erected two additions and added 150 knitting and about 100 sewing machines.

Harrisburg. Modern Textile Co.; underwear; moved to 1823 Penn street and added 2 knitters and 2 sewing machines.

Myerstown. Myerstown Hosiery Co.; added 21 knitting machines.

Pottstown. Vaughan Knitting Co.; built 60 x 140 ft. addition.

Philadelphia. Harry C. Aberle Co., Clearfield and A streets; ladies' hose; added 15 knitting and 50 sewing machines.

Philadelphia. Wear Best Knitting Co.; added 20 knitting machines and 72 Paramount Hosiery Drying Forms.

Reading. D. S. & W. Hosiery Co.; moved into new mill constructed last year and added 180 knitting machines.

Reading. Gherke Knitting Mills; built 22 x 100 ft. addition to finishing dept. to local plant and erected new branch mill at Fleetwood, Pa., 26 x 100 ft.

Reading. F. Y. Kitzmiller Co.; 32 knitting machines installed in building to be operated as Mill No. 4; machinery added to each of 3 other branches operated by the company.

Reading. Penn Hosiery Co.; added 25 knitters, 5 loopers and 10 ribbers.

Neenah. Jersild Knitting Co.; sweaters; 35 x 120 ft. addition for warehouse.

Canada, Ontario, Hamilton. T. Eaton Co., Ltd.; added 3 sets of cards to local hosiery branch.

Kingston. Kingston Hosiery Co., Ltd.; hosiery and underwear; added 42 knitting machines.

London. London Hosiery Mills, Ltd.; built $20,000 addition; 100 new knitting machines added. (Formerly Peerless Hosiery Mills.)

St. Catherines. Monarch Knitting Co., Ltd.; addition to boiler house costing $1,500; built $25,000 dye house.

Stratford. Avon Hosiery Co.; $4,000 boiler house.

Toronto. Henry Davis & Co., 253 Spadina avenue; installing 4 flat knitting machines and 6 sewing machines for sweaters.

SILK

Illinois, Chicago. Oscar Heineman Co., Inc.; addition 150 x 125 ft., four stories high; 15,000 new spindles.

Chicago. E. L. Mansure Co.; trimmings, braids, etc.; moved to larger quarters at 1601-13 Indiana avenue; added 5 looms.

Massachusetts, Florence. Nonotuck Silk Co.; capital increased to $2,000,000; addition to dyehouse 44 x 22 ft.; new dyeing machine installed.

New Bedford. National Spun Silk Co.; four-story addition, 340 x 60 ft.; new machinery installed; transformer house and switch room, 23 x 28 ft., one story high; electric drive; another addition 40 x 160 ft.

Pennsylvania, Bowmanstown. The Bowman Silk Co. built 2-story 18 x 60 ft. and one-story 25 x 65 ft. additions; 500 new spindles.

Columbia. Schwarzenbach-Huber Co.; took additional space; no new machinery.

Easton. Edirose Silk Mfg. Co. to erect new silk mill 60 x 120.

Easton. Alexander Smith & Son installed 8 looms for commission weaving, in addition to their old winding business.

Hawley. Welwood Silk Mill, built two-story addition.

Hudson. Century Throwing Co.; 45 x 60 ft. addition built and 5,000 spindles added.

Lewiston. Susquehana Silk Co., erected 50 x 100 ft. power house.

Meadville. Niagara Silk Mills; 50 x 90 ft. addition built for cotton glove department.

Rhode Island, Central Falls. Salembier & Clay, Inc.; broad silks; built 40 x 100 ft. addition and added 24 looms.

Pawtucket. American Hairnet Works added 150 looms for weaving broad silks.

Providence. American Silk Spinning Co.; built 98 x 80 ft. addition for storage.

MISCELLANEOUS

Kentucky, Louisville. Ohio Falls Dye & Finishing Works; fireproof addition 60 x 160 ft., cost $9,500; equipment installed costing $65,000.

East Weymouth. East Weymouth Wool Scouring Co.; new building, 200 x 50 ft., two stories, for wool scouring, carbonizing and storage.

Pennsylvania, Carlisle. Carlisle Dye Works adds by-products department for cleaning table oilcloth, etc.

Morrisville. Scientific Textile Co.; addition to dyehouse built for silk yarn dyeing; new winding machines installed.

Philadelphia. Philadelphia Wool Scouring & Carbonizing Co.; one story addition 70 x 171 ft.; two story addition, 20 x 55 ft.

Philadelphia. The Phoenix Dye Works; addition; installed 8 new rotary dyeing machines, bleaching plant for cotton and silk hosiery; discontinued finishing of cotton hosiery.

Philadelphia. Summerdale Dyeing, Printing & Finishing Works, Inc.; two story addition, 59 x 88 and 40 x 88 ft.; alterations and additions made to storage house.

Rhode Island, Pawtucket. D. Goff & Sons; worsted and cotton braids, erected addition 350 x 120 ft.; no new machinery.

Providence. Queen Dyeing Co.; built 75 x 75 ft., boiler house.

Woonsocket. Enterprise Dye Works; erected 88 x 72 ft. addition.

Woonsocket. Star Carbonizing Co.; carbonizing of wool and noils; 40 x 104 ft. storage house built; 53 x 175 ft. mill building; 40 x 140 ft. power house.

Tennessee, Memphis. American Finishing Co.; leased additional space and increased capacity 30 per cent.

Wisconsin, Sheboygan. Black Cat Textiles Co.; 50 x 150 ft. addition; equipment increased to 450 knitting machines.

New Machinery and Processes

FLEXIBLE CARD EQUIPMENT

Unit Frame Construction Allows Machines to Be Changed Over Easily

Flexibility in card room equipment is obtained by a new method of construction developed by Smith & Furbush Machine Co., Philadelphia. Cards can be rearranged for different classes of work by putting sections together or taking them apart, according to the requirements of the particular material being run through.

It has been the custom to build such machines with the frames in as large pieces as could be satisfactorily handled in the foundry, usually two or three pieces in a big card. The points of division were not usually located at places where they would be of service if it was decided, at a later date, to split the large card into two or more smaller ones. If such a job were done, the frame had to be cut at several places, often resulting in a botchy-looking job. The same results occurred if two single cylinder cards, such as a second breaker and a finisher card on woolen yarn, were to be coupled together.

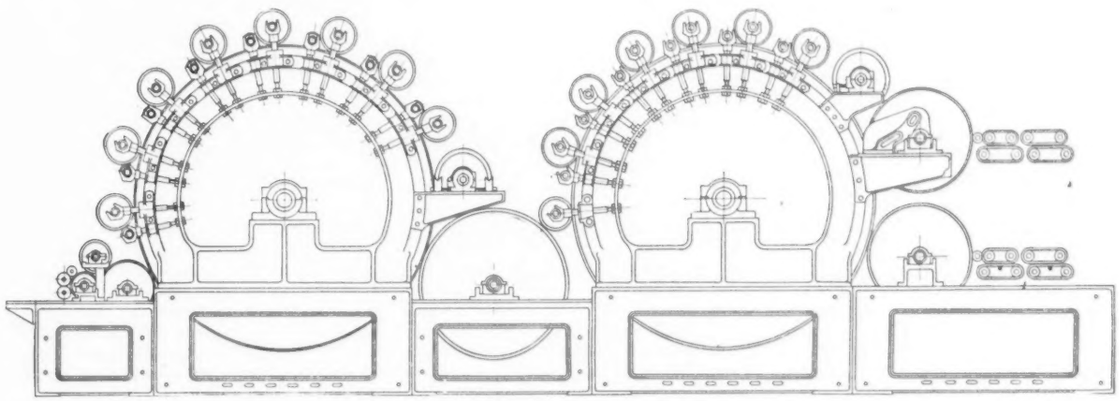
With the foregoing conditions in mind, and in view of the facts that much machinery purchased during times like these will probably require at a later date to be changed onto an entirely different class of work, they were led to work out a design of a card frame made in sections, of which each section could be used as a unit. The new construction does not alter the general appearance of the cards, which is the same as all modern equipment, and many favorable comments have been made on the appearance and practicability of the frame-work.

FRAMES STRONG AND RIGID

The sections are all made in rectangular pieces, planed on all surfaces, and not only securely bolted together, but doweled to insure perfect alignment and unity. After a frame has been bolted and doweled it is said to be fully as strong, rigid and straight as a solid frame. The low sections are made with a T-slot on the top so that in case of changes it will not be necessary to drill any holes for bolts.

Other valuable features arise, such as the facility with which intermediate or ring doffers may be removed when necessary. In the case of a two- or three-section card, the removal of an intermediate doffer has always presented considerable difficulty. With this type of frame a section can be taken out of the frame and the doffer wheeled out on a truck. On woolen finisher cards with large and heavy ring doffers the last frame section may be pulled back to get at the doffers or the main cylinder.

The illustration shows what a simple matter it is, with the new construction, to convert a two-section card into two one-cylinder machines, only a pair of small extra sections of frame and two pairs of nose pieces being required. It also demonstrates the ease with which a second breaker and finisher can be combined into a two-section finisher card.



CARD WITH SECTIONAL UNIT FRAME; DOUBLE SECTION FINISHER MADE UP OUT OF A SECOND BREAKER AND A FINISHER; EASILY CHANGED BACK INTO A SINGLE CYLINDER BREAKER AND A SINGLE CYLINDER FINISHER

NEW MACHINERY AND PROCESSES

During the last year the number of new machines and processes brought out has been comparatively limited, for reasons it is not difficult to recognize. Equipment manufacturers have proceeded along concentrated lines, bending their energies to keep up with the demand for machinery under unfavorable conditions as regards labor and materials. With the need of getting the most out of their resources, less time and effort naturally were given to new devices whose production is often due to competition. A number of new and improved machines were brought out, however, some of which are briefly described and illustrated on the following pages.

NEW "BANNER" MACHINES

Full Automatic Glove Machine and New Model Split-Foot Machine

During the past year the Hemphill Company, of Pawtucket, R. I., builders of the well known Banner full automatic hosiery machine, have designed and developed an automatic glove machine for the manufacture of knitted gloves, and a new model split-foot machine.

AUTOMATIC GLOVE MACHINE

This glove machine is distinctly a "Banner" machine in construction and identical with it in many ways, with the exception of a few changes about the cylinder and cam block. One particularly striking feature, and a fact that will reduce machinery cost to glove manufacturers, is that all sizes of gloves of the same guage are knit on the same cylinder. The only variation being in the number of needles used to knit the article. This machine may also be readily changed to make either a right-hand or a left-hand glove and can be turned over from one to the other in a short time.

This machine is so arranged that full gussets are knit between the fingers, removing the strain from this point and allowing the glove to be well finished. Like the Banner full automatic hosiery machine, this glove machine is fitted with a yarn change, so that any part of the palm or fingers, or in fact any section of the glove may be reinforced for protection against wear. In this manner the fingers can be reinforced individually at different points, or for the full length of each finger.

It may be set up in batteries of twelve or sixteen on a side, similar to the Banner hosiery machine on string work, and the gloves are knit in the same manner, either to be cut apart or separated by dropping a light yarn at the point of finish. After being taken from the machine, the only other operations necessary are seaming and finishing. The sides of the wrist and the fingers, where sewing is necessary, are knit with a full selvage, a fact that will prevent drop stitches and ravelling, and at the same time be a great help to the stitcher.

LARGE PRODUCTION

The manufacturers figure that the average production on 12-gauge work for a heavy wool glove to be five dozen pair per 10-hour day, and on finer gauges this will be reduced slightly to an average of perhaps four dozen pair per 10-hour day.

Gloves made on this machine are exactly uniform in size, with each finger and palm the same on each glove. The number of operations are reduced to six, and at the same time nearly all waste is eliminated.

COMPLETE LINE ON ONE MACHINE

On the same machine it is possible to knit a complete line of gloves for either men, women, or children; the only change necessary between the various styles being the number of needles placed in action and the length of the wrist, palm and fingers. It may also be set up for the manufacture of mittens, by changing the position of the needle jacks and the time of action of the selector cams, knitting the thumb and top of the mitten automatically, leaving the sides open for sewing.

This Banner automatic glove machine will be built in all gauges to suit either heavy woolen gloves, or lighter and finer gauges for cotton and silk gloves. Special tools, jigs, and fixtures are now being made to manufacture this type of machine in large quantities.

NEW MODEL SPLIT-FOOT MACHINE

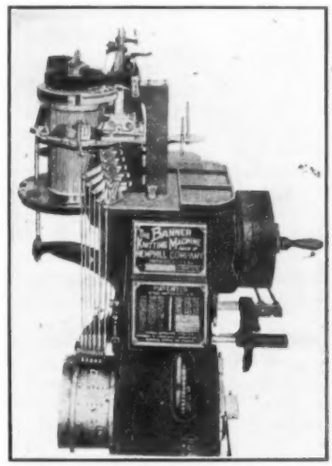
For the past eight years, the Hemphill Company have built a split-foot machine designed especially for such work as 176-needle, 188-needle and 200-needle goods. A large number of machines of this type have been built and are now running with satisfaction on this class of goods in many mills in this country and abroad.

For several years past there has been a growing demand for machines of this type in finer gauges, especially for the manufacture of a high grade silk ladies' hose with a heavy double sole. This is caused by the cutting of the floating double sole yarns, which are absolutely unavoidable in making a seamless hose in this usual manner.

The first type of machine was designed with a short cylinder leaving comparatively little room for the cams and picks, especially on the auxiliary side, where these parts were of necessity smaller than the standard types used on the "Banner" and fastened in such a manner as to allow but very little adjustment.

In re-designing this machine, while aiming towards the finest gauges practical, they have developed a machine by the use of a longer cylinder with plenty of room for the substantial working cams, with the same radius of adjustment on both sides of the block, allowing the cams on the auxiliary side to act directly against the cylinder at all times.

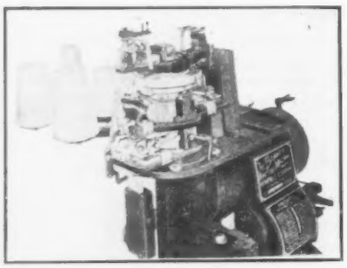
This auxiliary cam block is located under the cam plate and acts upon jacks instead of directly upon the needle butt, thus reducing materially



"BANNER" FULL AUTOMATIC GLOVE MACHINE

the expense of needle breakage, as these jacks can be easily and cheaply replaced.

They have built this machine in 3½ inches, 240-needle, with very satisfactory results, making a ladies' hose with



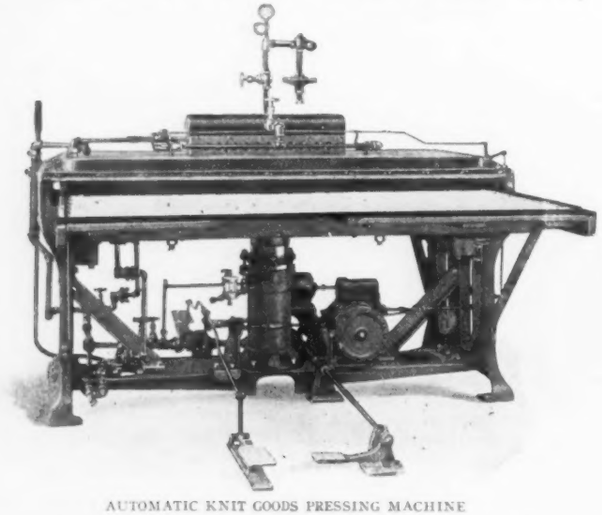
"BANNER" SPLIT-FOOT MACHINE

the use of a web take-up that compares very favorably in form and appearance with a full fashioned hose. After exhaustive tests they are ready to place this machine on the market, and are preparing the necessary tools, jigs and fixtures to build it on a quantity basis.

AUTOMATIC PRESS

Attachment Insures a Definite Uniform Pressing of Knit Goods

The United States Hoffman Machinery Company, Syracuse, N. Y., have brought out the Model FFF automatic knit goods pressing machine. The particular advantage of this model lies in the fact that each and every trayful of garments pressed can be given the same quantity of steam and the same pressing interval. The steaming and pressing interval which is most suited to the particular grade of goods being pressed can be determined upon by the operator and the automatic attachment so regulated that all subsequent trays of the same grade of material can be given identically the same treatment by this machine. They consider this improvement quite an important one, as it gives the greatest uniformity to the finish of knit goods. The pressing of garments with buttons sewed on is also a feature of this press.



AUTOMATIC KNIT GOODS PRESSING MACHINE

The attachment can be regulated to give from three to twenty seconds of steam application. The capacity of the press ranges from 700 dozen to 1000 dozen garments daily. Because of the great capacity of this press, most users employ four girls in its operation: two loading the pressing trays and two pressing and unloading.

SAFETY LIGHTING UNIT

Benjamin Reflector Socket with Wire Glass Guard Reduces Fire Hazard

A lighting unit made particularly for use in cotton warehouses, textile mills, and other places where inflammable material is manufactured or stored, has been brought out by the Benjamin Electric Manufacturing Co., Chicago, Ill. The unit is a very efficient one, and is made in sizes to accommodate lamps of all the commercial ratings. It is equipped with a wire guard at the bottom which will prevent particles of the lamp, in case it breaks, from falling into inflammable material.

The reflector is porcelain enameled steel in one piece, with green finish outside, and non-discoloring white porcelain enamel inside. The fittings are extra heavy separable X type, tapped one-half inch or three-eighths inch as ordered. All porcelain, easy-to-wire type of socket, with Benjamin lamp grip, to prevent loosening and falling of the lamp, is used. The guard is a galvanized steel band and wire glass disc with the lower portion of the guard hinged to the band. Both guard and fixture are adequately ventilated.

REMOTE CONTROL STARTER

For Small Induction Motors Up to 7½ Horse Power

There has always been a demand for a device for starting small induction motors from remote points by throwing them directly across the line. The General Electric Co., Schenectady, N. Y., has recently developed and placed on the market such a starter, known as the CR-7006 remote control switch, arranged for push-button control. This starter is applicable for use with motors up to and including 5 horsepower, 110 volts, and 7½ horsepower, 220, 440 and 550 volts. In addition to its starting function it provides protection against undervoltage and overload. The device consists of a 25 ampere, 3 pole, contactor with two inverse time limit gravity reset overload relays mounted on a slate base totally enclosed in a strong sheet iron case.

A small "start and stop" push-button station is used as a remote control switch. Completion of the starting circuit, by pressing the "start" button, energizes the coil of the magnetically operated switch, closing the contacts, which throw the motor directly on the line. Interruption of the circuit or a radical decrease in voltage permits the contacts to reopen by gravity, thus stopping the motor, which cannot start again until the "start" button is pressed. The overload relays can be adjusted for various values ranging from normal up to 50 per cent. above normal. They can also be adjusted over a wide range of time values. The relay trips automatically and resets by gravity. The cover of the enclosing case is furnished with a hasp so that if desired it can be locked in a closed position by padlock.

OPEN TOP CENTRIFUGAL

Design Embodies Several Features Which Are of Interest to the Trade

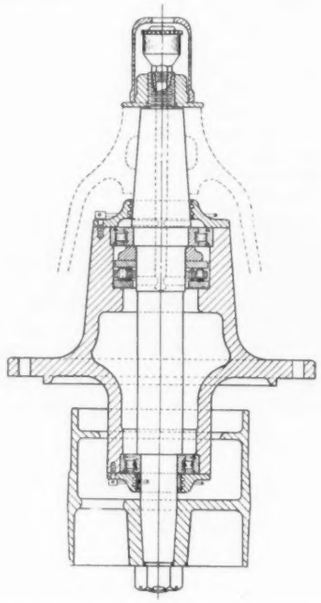
The illustrations herewith show the center-slung hydro-extractor recently placed on the market by the Tolhurst Machine Works of Troy, N. Y. The design embodies several new features, which are of interest to the trade.

It is generally conceded by extractor users that the machine which most readily accommodates itself to unbalanced loads is the longest lived and safest machine. The Tolhurst "self-balancing" hydro-extractor so fully meets this condition that it was felt that especial care should be taken in developing the new design to produce a machine which will win as favorable a position in the open top field as the self-balancing type enjoys in the over-driven class.

From the illustration it will be noticed that no deep pit in the floor is required. The practice of allowing the case or curb to gyrate by suspending it in links was adopted, since for the open top construction this is perhaps the simplest method of compensating for unbalanced loads. An exhaustive series of tests and much study have indicated that the point of attachment of the links should be about on a line with the mid-depth of the basket. With the links so attached, the co-operation of the forces due to unbalanced loads and to gravity is such that the tendency of the case to dance or pound in the links is entirely eliminated and maximum flexibility is obtained. As a result, bearing stress and friction are greatly reduced. In view of the new principles employed, the patent office has allowed generous claims on the center-slung mounting.

REDUCING FRICTION AND WEAR

To further reduce friction and wear three roller bearings are carefully placed to carry both radial and thrust loads. These bearings are enclosed in a single, dirt-proof housing and packed with grease, thus insuring accurate alignment, positive lubrication and eliminating troubles from oil leakage. By removing the basket and six cap screws, the entire rotating element, including spindle, bearing, housing and driving pulley, may be lifted out so that the work of inspection and cleaning is made easy.

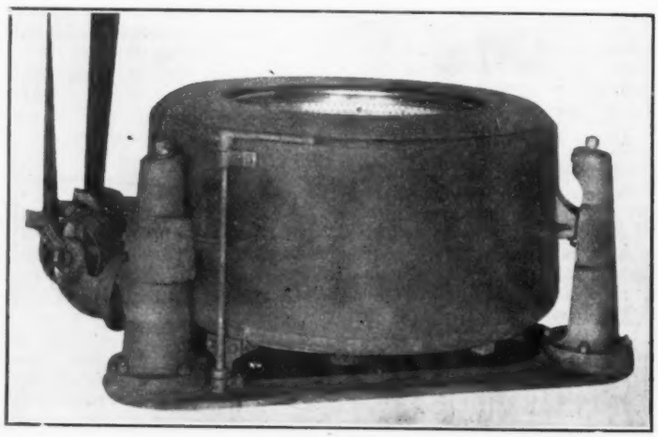


ASSEMBLY OF SPINDLE HOUSING, CENTER-SLUNG HYDRO-EXTRACTOR

The sectional drawing of this unit assembly indicates the compactness and simplicity of construction obtained. Lubrication is maintained by an occasional turn of the grease cup in the upper end of the spindle on vertical shaft. The grease cup is enclosed with a polished dome or spindle cap which prevents goods from touching grease cup or becoming caught on the spindle nut. Adjustment of the grease cup is made through an aperture in the top of the dome.

From the operator's point of view, a great improvement will be seen in the rounded case top. Also, the height of the machine is proportioned to suit the average operator so that the basket bottom may be reached easily and comfortably. The basket is well protected by the case top, so there is no danger of catching the operator's sleeve.

Various basket construction may be furnished and the cases may be lined with lead, rubber, tin or copper. The machine illustrated has a basket diameter of 48 inches. Other standard sizes will soon be available.

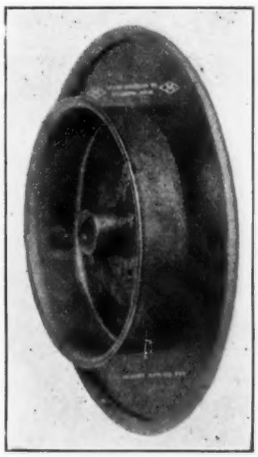


CENTER-SLUNG HYDRO-EXTRACTOR

STEEL LOOM BEAM HEAD

New Type Designed to Replace Cast Iron Heads—Light and Durable

The illustration shows one style of the line of steel loom beam heads brought out by Frank Mossberg Co., Attleboro, Mass. These heads are made for all kinds of beams, and can be fitted to the wooden barrel the same as cast



LIGHT AND DURABLE STEEL LOOM BEAM HEAD

iron heads. They are 39 per cent. lighter than the cast iron heads they replace, , and are shipped third-class freight, giving a saving in freight bills that is stated to be about 46 per cent.

The unbreakable feature is the largest advantage claimed for these heads. Beams in themselves are heavy and a full beam is about the heaviest yarn package handled in the mill. The heads naturally meet pretty rough usage in the course of their lifetime, both accidental and in the usual routine, and in the construction of these unbreakable steel heads the manufacturers have provided a construction that stands up under all conditions.

Other features to which attention is called are that beams equipped with steel heads can be more easily and quickly handled. The curled flange gives a very smooth edge to the heads which prolongs the life of wooden barrels when the beams are piled up empty, not cutting or splintering the wood.

PUMP AND CLUTCH

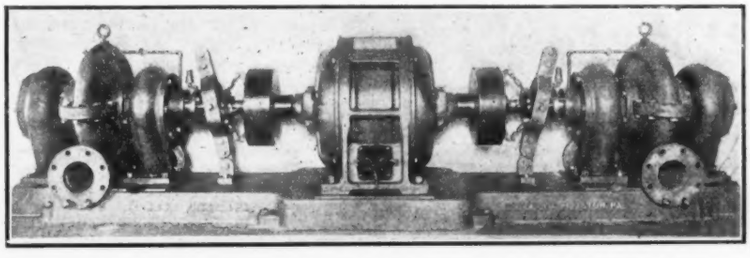
To Meet Conditions Found in Dyeing Machinery

The Delahunty Dyeing Machine Co., Pittston, Pa., are placing on the market a double pump unit connected through clutches with an electric motor. Their primary object in the development of pumps and clutches was to meet the conditions which they found necessary in their well-known beam dyeing machines.

If a certain process of dyeing should require a pressure of 30 pounds to obtain the best results, the quality of the work done would depend almost entirely upon the efficiency of the circulating pump to maintain this pressure at all times. Any decrease in the efficiency of the pump would consequently affect the quality of the work produced in a like proportion, as the actual efficiency of the pump is the quotient obtained by dividing the quantity of work it really does by the quantity it is supposed to do. The efficient value of this quotient depends upon whether the liquid thrown off by the impeller actually reaches its final destination, or whether a large portion of it slips back into the pump casing and re-enters the impeller intake again and again, reducing the actual quantity delivered, the pressure to be maintained, and destroying eventually the efficiency of the pump.

The pump may be described briefly as of the double suction volute, centrifugal type. It overcomes the defects referred to above by taking the suction through a special form of revolving sleeve, which extends in the suction chamber through a packed stuffing box, rendering impossible the escape of any liquid once thrown off by the impeller from again reaching the intake opening.

The clutch is of the internal brake, expanding type, allowing a certain amount of end thrust of shaft without causing any chafing sufficient to rotate the member at rest; also it provides for any lateral or floating movement of the motor shaft, when attached to an electric motor, without affecting the idle member.

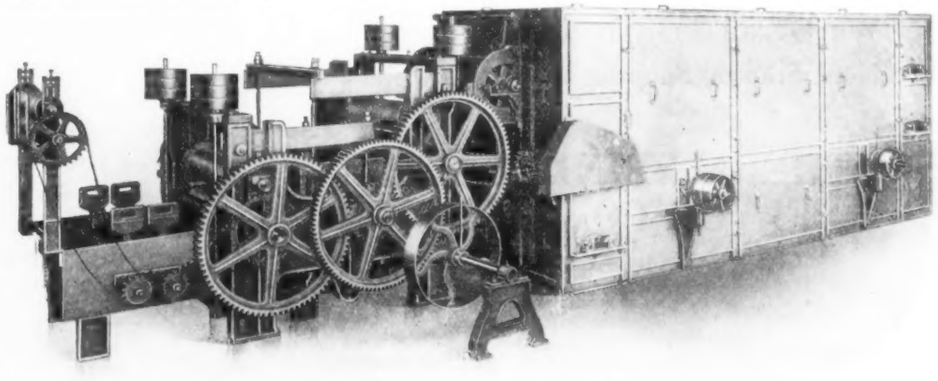


DELAHUNTY DOUBLE PUMPING UNIT CONNECTED THROUGH CLUTCHES WITH A 30-H.P. MOTOR

BACKWASHER AND DRYER

Complete Unit, or Dryer, May Be Used with Other Backwashers

The illustration shows the backwasher and backwash dryer brought out by C. G. Sargent's Sons Corp., Graniteville, Mass., in response to frequent queries from worsted mills for an American-made machine of this type. It is a complete unit for cleansing and drying sliver and top, and while built primarily to operate with quality of product the principal consideration, is claimed to have distinct advantages from the standpoint of quantity. The dryer is also adapted to operate with backwashers already installed, and several mills are using it with their old backwashers and in this way eliminating the heated cylinders.



BACK WASHER AND DRYER WITH WIRE CLOTH APRONS ON WHICH SLIVERS LIE LOOSELY

THE BACKWASHER

The bowls of the backwasher are of liberal proportions, and allow the fibers ample saturation. On the first bowl is mounted a pair of 5-inch diameter, gear-connected, chain-driven copper feed rolls, with an adjustable spring tension for the top roll. On entering the first bowl, the ends of sliver pass beneath a 3½-inch diameter copper immerser roll, then between two pairs of 3½-inch diameter, chain driven, immersed pressing rolls, the top rolls being weighted. There is also a 3-inch diameter copper guide roll. The second bowl is 16 inches deep, and has two 3-inch diameter copper guide rolls and two 6-inch diameter copper immerser rolls. Each bowl has a pair of solid hammered steel press rolls fitted with their patent friction roller coupling gears. Compound leverage with overhead weights exert a pressure on the top rolls of about four tons. This machine is a result of a careful study of the subject of backwashing and the different machines in use, and the correctness of the design and construction is shown by its performance.

THE BACKWASH DRYER

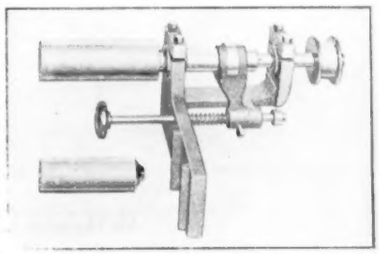
A radical change from the cylinder type of dryer has been made in the new backwash dryer by the substitution of internal slat, chain-driven, spirally-woven wire cloth aprons on which the ends lie loosely and are carried through the drying chamber. The machine has three of these aprons, the feed-end drum of the top apron, and the doffer-end drum of the bottom apron extending outside the drying chamber. The ends of sliver are simply tucked under the feed roll on the top apron, and no further attention need be given them until they enter the gill box. They are conveyed by the top apron the length of the drying chamber, when they are deposited on the middle apron, which again carries them the length of the drying chamber, but in the opposite direction, and finally are received by the bottom apron which carries them to the doffer-end, from which they go to the gill box.

The material travels about 45 feet on the aprons, while currents of heated air are circulated through it. The moisture is carried away by the exhaust and the result is fiber dried to almost any degree of moisture content. It must be noted that while being dried the sliver is lying loosely upon wire cloth aprons, and that the drying action is by means of the circulating hot air, and not by the radiating action of hot metal contact. The dryer is made with a cast iron frame supporting double thickness steel, asbestos or magnesia interlined panels.

SPINNING CAP GRINDER

Simple Device Attached to End of Spinning or Twister Frame

In the nature of cap spinning the bottom rim of the cap must be kept as smooth as possible, while the tendency in running the frame and in taking the caps off and putting them on in doffing and piecing up ends is to cause burs and nicks. In spite of the greatest care roughness will manifest itself and caps must be ground smooth occasionally.



GRINDER FOR WORSTED SPINNING CAPS; TO BE ATTACHED TO END OF FRAME

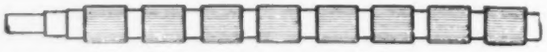
To make this operation more convenient for the spinning or twisting room, B. S. Roy & Son Co., manufacturers of grinding machinery, Worcester, Mass., have brought out the cap grinder shown in the illustration which is designed to be attached to one of the ends of the frame. It is bolted to the end frame at a height convenient for use, and is driven by a tape or rope from the driving cylinders. It runs continuously, as the power requirement is practically nothing and the device is not in the way of the operatives.

When a cap is found with a bur, nick or any other roughness in the bottom edge that will break down the end, the spinner, section hand, doffer or band boy, usually the band boy, simply inserts the cap in the hollow cylinder shown at the top of the illustration and holds an emery stone for a few seconds against the rough edge to smooth it down, then polishes up the edge with a piece of emery cloth in the usual way. The cap is then ejected from the cylinder by pulling out a handle, which releases the grip of the cylinder, and is ready for immediate use on the frame, the whole operation generally requiring no more time than an end may ordinarily be down.

THE ONLY FLYER PRESSER MANUFACTURERS IN THE SOUTH

TEXTILE MACHINERY

Manufactured, Overhauled and Repaired



WE MANUFACTURE

Steel Rolls, Flyer Pressers, Card Room Spindles, Etc.

WE REPAIR

Steel Rolls, Spindles and Flyers of All Kinds, Picker Lap Pins, Etc.

WE OVERHAUL AND REARRANGE

Card Room Frames, Spinning Frames, Twisters, Spoolers, Etc.

SOUTHERN SPINDLE AND FLYER CO., Inc.

Charlotte, North Carolina

W. H. MONTY, *President and Treasurer*

W. H. HUTCHINS, *Vice-President and Secretary*

ESTABLISHED 1875

Walker Manufacturing Company

Kensington Ave. and Ontario St.
PHILADELPHIA, PA.

MANUFACTURERS OF

ALL KINDS OF

LOOM REEDS

SLIDING HOOK AND DOUBLE BAR HEDDLE FRAMES

Made with Iron or Wood Ends

ASK FOR SAMPLES

TWINE

FOR EVERY PURPOSE

JUTE—HEMP—FLAX—COTTON—LINEN FINISHED

Fancy Linen Finished Twines Colors a Specialty

MORICE TWINE MILLS

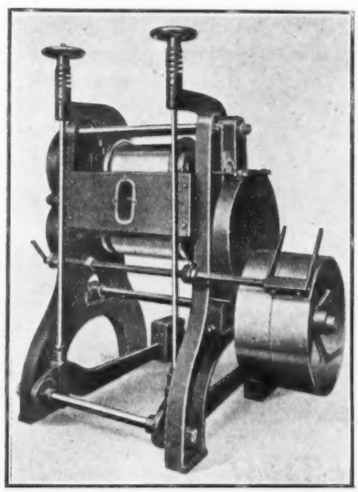
Water and Tasker Streets **Philadelphia, Pa.**

CLOTH SQUEEZER

Saves Time in Extracting Wash Water—Low Cost and Level Results

The illustration shows a squeezer recently brought out by James Hunter Machine Co., North Adams, Mass., which has proved to give remarkable results in extracting water from goods.

The machine is of sturdy construction, built for long service, and the following specifications are given; Squeeze roll frames are heavy ribbed castings finished to receive roller boxes, and pipe girts hold them securely and in line. The rolls are cast iron, finished all over, and bored to receive shaft which is forced in under a pressure of 75 tons; the top roller is flanged to receive lapping, and if desired a rubber-covered top roll is furnished. The gears are heavy and strong, molded from machine cut patterns. The driving gears are 1¼ pitch, 2¾ face, ratio 3.7 to 1. Long tooth compensating gears connect the rolls, preventing slip and allow for wear of lapping. Roll bearings are of cast iron babbitted with genuine babbit machined on the sides to fit housings. The driving shaft bearings are of cast iron, bored and reamed, and are ring oiling. Guards are provided for all gears. The driving pulley is 24 in. in diameter, and about 5 horsepower is required to drive the machine. The floor space occupied is 4 ft. 6½ in., by 5 ft. 2½ in.



SQUEEZER FOR REMOVING MOISTURE FROM CLOTH

The manufacturers call attention to the low first cost of the machine, and the saving in operating expense and upkeep. They state it will take the place of more expensive equipment in handling many classes of goods and will turn out more work.

NEW BROOMLESS SWEEPER

Device with Larger Capacity for Coarse Goods Mills and Fine Yarn Mills

Cost reducing apparatus of all kinds makes an unusually strong appeal to manufacturers under present conditions, not only on account of the high cost of materials, supplies and labor, but also on account of the growth of the thrift habit in our personal and industrial practices. For these reasons a further development in broomless floor sweepers for textile mills, which has been made by William Firth, 200 Devonshire street, Boston, is of timely interest.

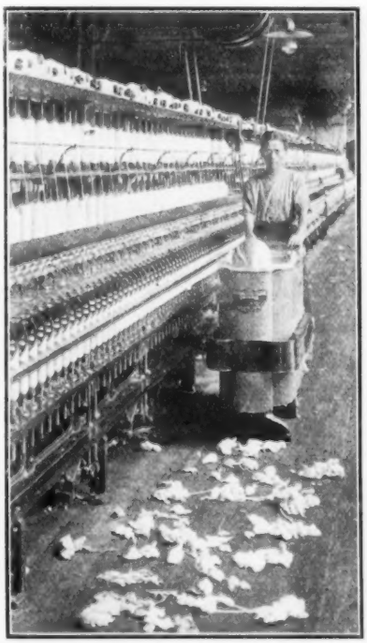
A new model known as No. 1 has been brought out which has 35 per cent. more capacity than the machine now in extensive use. This new type of machine is especially adapted for coarse goods mills where the sweepings run quite heavy, and, with an extra attachment, for fine yarn mills where the sweepings run very light. It has all the advantages of the standard model of broomless floor sweeper, now largely used for collecting the waste from under and around machinery in mills on medium goods, such as the picking up of waste with less expenditure of time and labor, and the handling of waste so that it is in cleaner condition.

An illustration of the new machine is shown herewith. The No. 1 broomless floor sweeper is a motor driven, self-contained machine, equipped with Edison B-6, 9-cell storage battery and ¼ H. P. motor. The motor is started and stopped by means of a key switch mounted on the machine. The storage battery drives the motor at normal speed for eight to nine hours, and can be recharged overnight, or under ordinary conditions between sweeps during the day.

The motor is directly connected to a special design fan which creates a vacuum that picks up the sweepings and delivers them to the waste receiver, and when desired the discharging air current is deflected to either side of the machine. This air current is regulated to force the lint and waste from under spinning frames and other machinery into opposite alleys and spare floors, where it can be reached and picked up later by the machine.

ATTACHMENT FOR FINE YARN MILLS

Where blowing the lint and waste is considered undesirable, as in fine yarn mills where the sweepings run so very light that any attempt to move them by an air current tends to make bunches in the yarn, they recommend the No. 1 broomless floor sweeper with an extra attachment, consisting of a flexible tube and special vacuum sweeping nozzle, which reaches under the machinery and removes the lint and waste by vacuum. With the special attachment all the sweeping in and around machines in fine yarn mills can be done by vacuum instead of air current.



NO. 1 BROOMLESS FLOOR SWEEPER FOR COARSE GOODS MILLS IN USE AT NASHUA MFG. CO. WITH EXTRA ATTACHMENT THIS MACHINE IS ADAPTED FOR FINE YARN MILLS

Special charging apparatus made by reliable manufacturers can be obtained with each machine or may be obtained from manufacturers direct. Motors, batteries and charging apparatus are guaranteed by the manufacturers. Printed instructions for installing and operating are furnished with each outfit.

NEW LIGHTING UNIT

Effectively Utilizes Light Developed by Lamp

Industrial lighting has been revolutionized by the Mazda or tungsten lamp. But this lamp is merely a light producer. If the light which is produced so efficiently is not so directed by properly disposed reflecting surfaces that it will be useful where light is really required, the advantages will be partially nullified.

THE INDUSTROLITE ASSEMBLED ON A LAMP SOCKET

A recently developed industrial lighting unit which satisfies all requirements to a marked degree is the Industrolite manufactured by the Luminous Unit Co., St. Louis. The optical principles which have been utilized in this device are new and very interesting. Its components are of steel. Hence it is unbreakable. There is nothing about its sturdy construction to become displaced or get out of order.

One feature of the Industrolite unit which is particularly worthy of notice is that it has no reflecting surface or projection which will collect dust readily. The porcelain will not crack or chip. The occasional wiping with a damp cloth will restore to the reflecting surfaces their original luster and whiteness. As the bottom of the reflector cone is open, there is no obstacle preventing the dissemination of any dirt particles which might tend to collect inside of the cone or on the incandescent lamp bulb. The fact that the bottom of this cone is open also permits certain of the light rays to be projected vertically downward so as to illuminate objects directly under the unit. These unintercepted rays are obviously in such directions that they would not ordinarily enter the eyes of the workers and produce the undesirable harmful glare.

The fact that the installation cost of Industrolite is exceedingly low is an important factor in its favor. The Industrolite unit fits—that is, it may be hung from any incandescent lamp socket. In applying the unit for the rehabilitation of existing lighting systems, the only additional expense is that of new Industrolite units and the labor of installing them. This labor cost is insignificant, as a boy with a screw driver as his only tool can install one of the units in a few minutes. Because of its simple construction, Industrolite can be sold at a low price.

ADEQUATE VENTILATION PROVIDED

The filament of modern gas-filled incandescent lamps operate at very high temperatures. Because of this it is imperative that any reflector unit used with them be thoroughly ventilated. If adequate ventilation is not provided, the life of the lamp will be decreased accordingly, and the cost of lamp renewals will become excessive. Ventilation in the Industrolite unit is exceptionally effective. In fact, it is claimed an incandescent lamp in an Industrolite unit remains almost as cool as if it were hanging free in the open air. The protector cone in reality provides a sort of chimney which causes the cooling air currents to cool it as they rise around the lamp bulb. Furthermore, there is an open-air space between the reflector metal and the neck of the lamp where the neck passes through the reflector. With these provisions no difficulty due to short lamp life is experienced.

FABRIC HOLDER

On Paramount Drying and Shaping Forms Adds to Appearance

Every hosiery mill man knows how important it is to get an absolutely uniform length in drying and shaping hosiery in order to present the most attractive appearance and to increase the selling value of his goods. And no goods are more dependent upon appearance as they are displayed over the counter or in the window, than hosiery. This makes an opportunity for the hosiery manufacturer, and also a responsibility to see that his product is finished so that it makes a strong appeal to the prospective purchaser.

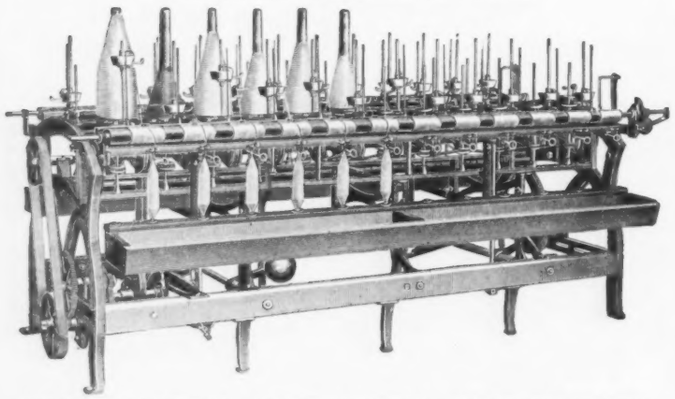
NEW FABRIC HOLDER

The Paramount Hosiery Form Drying Co., Chicago, Ill., have recently brought out a fabric holder (U. S. Letters Patent No. 1,279,332, dated Sept. 17, 1918), which is of importance in this connection. In a large measure the appearance of the stocking depends upon the careful positioning on the form, and when so placed this fabric holder maintains it in its proper position while drying and shaping.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers

WIND FROM COP, SKEIN OR BOBBIN

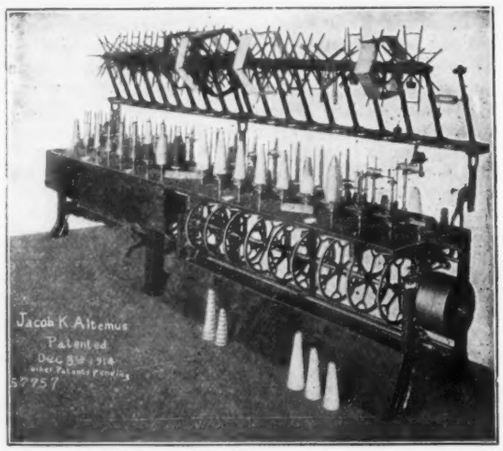


IMPROVED UPRIGHT SPOOLERS

To Spool from Cop, Skein or Bobbin
Doubling Spoolers for Doubling 2, 3 or more ends into one
Upright Quillers, Quill from Cop, Skein or Bobbin

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides, Bolsters and Steps Made and Repaired at Short Notice.

GEO. W. PAYNE CO., Office, 102 Broad St., PAWTUCKET, R. I.
(Est. 1865, Inc. 1903)
CHARLES W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas.



VICTORY

over Difficult Winding Problems

Use

2 B WINDER

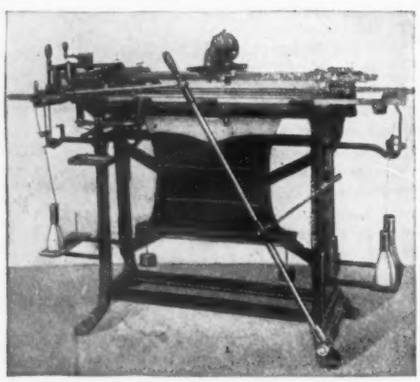
JACOB K. ALTEMUS, 2824 N. 4th St., Phila., Pa.
WINDERS, SPOOLERS, WARPERS AND BEAMERS

"DUBIED" Flat Knitting Machines

"DUBIED" LINKS and LINKS (Pearl Stitch)

Hand and Full Automatic Power Machines

are acknowledged by users, experts and judges, as "THE BEST"



Stock of Machines, Needles and Supplies for Prompt Delivery
Regular Shipments Received from Switzerland Despite the War

Write today for new Stock list "A"

Dubied Machinery Co.
E. O. SPINDLER, Agent
350 Broadway New York, N. Y.

John W. Hepworth & Company

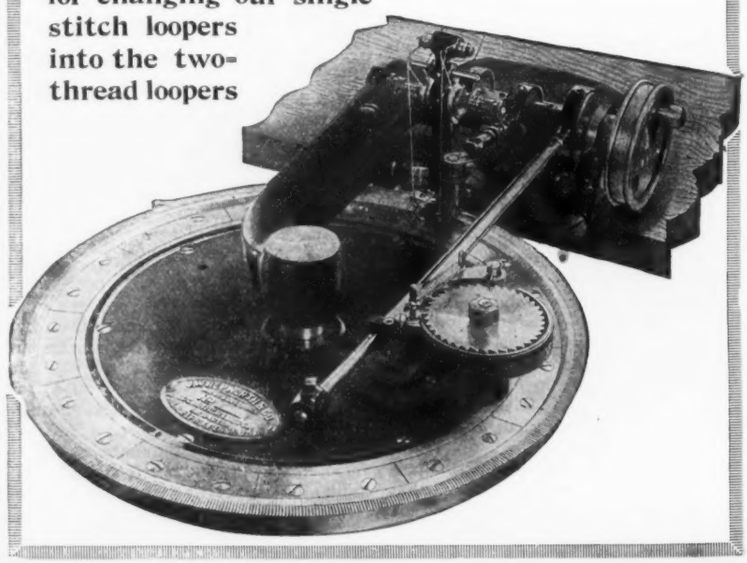
N. W. Cor. Lehigh Ave. and Mascher Street
PHILADELPHIA, PA.

Makers of

Two-Thread Elastic Lock Stitch Loopers

Also Attachments

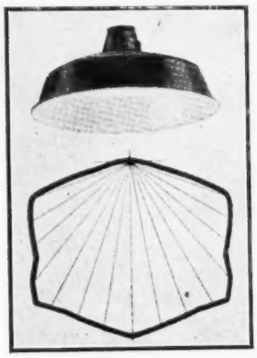
for changing our single stitch loopers into the two-thread loopers



DOME REFLECTORS

R L M Standard for Mazda C Lamps from 75 to 1,000 Watts

Light from bare Mazda lamps is raw material. To be useful it must be transformed into illumination. The light must be directed where it is needed, and its quality improved by diffusion so that glare is reduced and shadows softened. These results are brought about by the use of scientifically designed reflectors, installed in accordance with approved engineering practice.



R. L. M. STANDARD DOME REFLECTOR AND CHARACTERISTIC DISTRIBUTION

New reflectors for textile mill lighting, known as the R L M standard dome reflectors, have been brought out by the Ivanhoe-Regent Works of the General Electric Co., Cleveland, Ohio, for Mazda C lamps which utilize most effectively the raw material, light. The depth is such that ample protection from the glare of the lamp filament is provided when the reflector is used on the average mounting height, and this is particularly desirable where Mazda C lamps are used. However, best practice requires that either a bowl frosted lamp, or an opal cap be used to conceal the lamp filament entirely.

The new reflectors are adapted for coarse, medium and fine manufacturing, and are made for lamps ranging from 75 watts to 1,000 watts. They are porcelain enameled, green outside and white inside. The manufacturers recommend them as the highest standard of the distributing type for use where uniform illumination is desired.

A catalogue of metal reflectors and fittings for industrial illumination has just been issued which gives detailed information of the new type of reflector and other interesting information on planning a lighting system, where and how to use different types of reflectors, intensity of light required for various kinds of work, spacing of outlets, selection of lamps, etc. Copy will be sent on request.

IMPROVED THREAD CUTTER

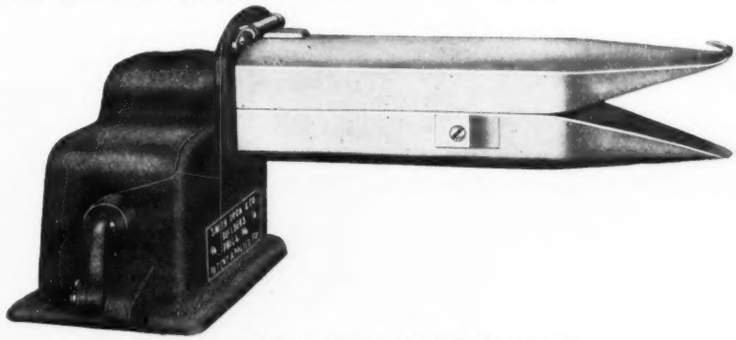
Cuts Within One-Eighth of an Inch of the Goods

The latest improved type of double sole thread cutter, brought out by Smith, Drum & Co., Allegheny avenue and Fifth street, Philadelphia, is shown in the accompanying illustration. It is run by power, a light pressure on a foot pedal causing a small friction pulley to operate the knives. The knives, which are made of the highest quality of tool steel, can be quickly removed and reset. The machine is made in three sizes to suit different diameters.

In the production of the device the policy of the manufacturers to build only high class equipment was rigidly followed out. It was aimed to simplify the construction and to turn out a first class cutter which would function perfectly. The machine was not designed to be built for a price, but to produce results which would increase the value of the goods and enhance the mill's reputation. It was believed that a better price could be obtained for goods with evenly cut threads, as accomplished when the work is done on the new improved cutter, for a poorly cut thread gives good reason for complaint on the part of the purchaser.

The new machine comes up to the standard set by the builders and the floating threads are trimmed off evenly with ends about one-eighth inch long. This short and even trim is especially desirable in stockings worn with low shoes, preventing the untidy effect where ends are of uneven length, ranging from one-half to three-quarters of an inch, or even longer in some cases. In ladies' goods particularly the improvement is noticeable. The machine is very conveniently constructed to keep the knives keen, and as they are made of high quality material they give considerable service before requiring attention. The weight of the knives helps to keep a perfect edge.

Some of the important features of the improved cutter to which the manufacturers call attention may be summarized as follows: It is run by power and is easily operated, a light pressure of the foot on a pedal causing a small friction pulley to operate the knives; extreme simplicity of construction; impossibility of cutting the goods; cuts within one-eighth of an inch of the goods; it is made in three sizes to suit the diameter of the stockings; the knives are made of the highest quality of tool steel and can be quickly removed and reset; by lifting the hinged upper part of the brass horn, accumulations of cut threads can easily and quickly be removed; it cuts all threads the same length; it is fitted with a hook for turning the goods.



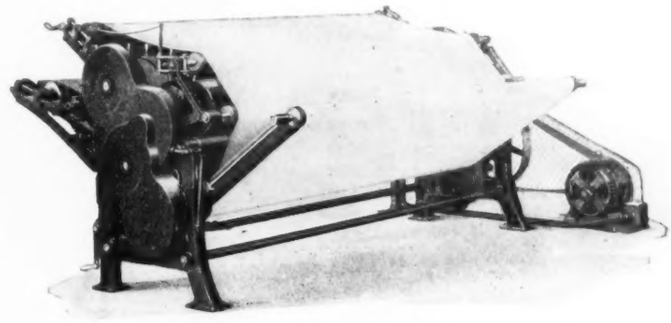
IMPROVED TYPE OF DOUBLE SOLE THREAD CUTTER

54-INCH HOSIERY PRESS

American Rotary Hosiery Press Now Made in Smaller Size

The American Laundry Machinery Co., Cincinnati, Ohio, have recently added a 54-inch rotary hosiery press to their line. This press was developed because of the demand from many medium-sized mills for a machine of smaller capacity than the well-known 100-in. size. The new 54-in. size has the same features of construction that have made the 100-in. machine standard in dozens of modern mills. The socks or stockings are taken from the boards, fed into the machine and finished with no lost motion.

This press is fast and it eliminates many operators that were necessary under the old methods of pressing hosiery. Special attention has been devoted to the problem of getting a larger production with a reduction in the number of employes. Added to these gains, the work is uniform and perfect. The hosiery is laid on the carrying apron by the feeders, passes through the machine between two aprons under pressure of the roll working in the chest. The goods are finished on both sides and delivered to the receiving table all completed, ready for the receiving operator to pile up.



THE NEW 54-INCH AMERICAN ROTARY HOSIERY PRESS

The American rotary hosiery press is so easy running that girls can operate it. It does not tax the strength of the operators for there are no heavy loads to carry back and forth from the machine. The production is uniform throughout the day, and there is no slowing up in the afternoon hours.

In these days of severe labor shortage, increased efficiency such as this is important to all manufacturers.

DECALSO SOFTENERS

A New Water Softening Zeolite That Produces Water Without Hardness

A few years ago a chemical means of removing all hardness from water was originated, producing what is known to the trade as "Zero Water," and a few well known textile men of extensive manufacturing interests, immediately recognizing the great importance and possibilities to their business, promptly installed an experimental plant. W. C. Foster, long in the employ of this coterie of textile men as a consulting engineer, was given the privilege of taking charge of this experimental water softener, to observe its operation and to note the results following the use of the treated water in their manufacturing processes.

Early stages of Mr. Foster's observations indicated that the zeolitic material used in the process fell short of expectations. Other commercial zeolites, made by varying process, were tried out and found equally deficient in producing the hoped for results.

ATTENTION CENTERED ON NEW PROCESS

In the course of this experimental work it was impressed upon the experimenters that the possibility of securing a zeolitic material, without the shortcomings of the tested commercial materials, was of sufficient importance to warrant the establishment of a laboratory. As a result of the work in this laboratory attention was centered upon a new process producing a synthetic zeolite, a discovery of Dr. Rudolph Boehringer, a chemist of Newark, N. J. Dr. Boehringer's process produced a beautiful appearing material that when subjected to severe laboratory tests gave evidence of possessing valuable characteristics.

Experimental work, testing severely the qualities of the various zeolitic materials as compared with Dr. Boehringer's zeolite, were carried on for two years. In the course of this work one zeolite would show ability to readily absorb chloride solution to an extent that a weaker solution of salt could be used to regenerate; another zeolite would show superior ability to absorb calcium and magnesium; yet another would show greater resistance to an apparently universal tendency to disintegrate; and so on through the list. But Dr. Boehringer's zeolite gave evidence of combining each of the other zeolites' merits, and especially that it could amost instantaneously exchange bases, could absorb very appreciably more calcium and magnesium than could a like quantity of any of the other zeolites, and did not disintegrate in or out of service.

Mr. Foster's principals purchased sufficient of Dr. Boehringer's material (now known to the trade as Decalso) with which to operate a softener in one of their dyeing departments, encouraging him to further perfect his process of manufacturing and to produce it in sufficient quantity for the market.

RESUME OF REPORTS

It should prove interesting to pass to a resume of reports secured from the manufacturer and from the users of Decalso. Salt solutions used for regenerating Decalso were gradually weakened until the most economical strength could be accurately determined, and following this the time was reduced during which the salt solution was passed through the zeolite. Passing the salt solution through for one and one-half hours gave regeneration equal to any period in excess of that, but further reduction in time (during the early experiments) gave imperfect results.

The next step was to determine with what rapidity water could be passed through the softener without shortening the life of Decalso or reducing its capacity to completely soften water. It was soon shown that uniform results were obtained at the rate of flow considered as good practice for mechanical filters, i. e., two gallons per square foot per minute.

The time required for regenerating Decalso, as now perfected, has been re-

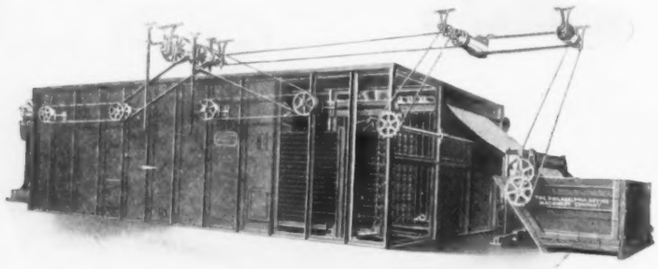
duced to something less than one-quarter of the time originally required, and a similar reduction has occurred in the washing time. A Decalso softener may now be regenerated, washed, and put back in service in an hour.

SUPPLYING LARGE QUANTITIES OF WATER

When an unusually large quantity of softened water is suddenly demanded, a Decalso softener will successfully meet the requirements, in a normal installation, by increasing the flow through the softener to two or three times the rate at which it was formerly considered good practice to operate and for short periods the normal rate may, successfully, be even further exceeded.

If a Decalso softener reaches its capacity for softening (becomes exhausted) during a rush period, the same importance as in the earlier zeolites is not attached to the occurrence since it may be regenerated, washed, and placed again in service in such a small fraction of the time required for those earlier types of zeolites.

It was observed, through the many tests of the zeolites, that all zeolites, some more rapidly than others, lost their power to satisfactorily soften water, this loss of power being evidenced by the decreasing quantity of sufficiently softened water a zeolite would produce between regenerations. Decalso showed this tendency, along with other zeolites, but to a lesser degree. Nevertheless Dr. Boehringer concluded to direct efforts toward the discovery of some method of revivification. These efforts were completely successful to the point that a method of revivifying Decalso has been patented and is available for renewing its life when required. The use of this process, at infrequent intervals, it is claimed, gives to Decalso a much longer life than for any other zeolite.



SATURATING, DRYING AND CARBONIZING UNIT FOR PIECE GOODS

Long use of Decalso in experimental and actual service has shown that deterioration or disintegration will not result from continuous or infrequent wetting and drying and that it is consequently unnecessary to store or ship it wet. In the process of regenerating it is quite permissible to allow the Decalso to drain to dryness after washing out the salt solution. The other tested zeolites were found to suffer disintegration from repeated wetting and drying, or shipping them dry, and a number of them were found to disintegrate rapidly under normal service conditions.

COST OF TREATING

The net result of the many and varied tests of Decalso has been to establish that one-third to one-quarter of the quantity of salt will regenerate it that is required for regenerating a softener of equal size containing the earlier zeolites. This reduces the cost of treating a five degree water (expressed as grains of calcium carbonate per gallon) to approximately 3 cents per thousand gallons of "Zero Water."

Thorough testing of a zeolite is a long process and should be based upon its performance in two or more softeners for at least fifty to one hundred regenerations, and the resulting data accurately correlated. The performance of Decalso, under actual working conditions of the utmost severity, have given assurance that the zeolite will produce results heretofore unattained, it is claimed.

The plans of Dr. Boehringer and his colleagues (known as the Staten Island Chemical Company) have been completed to the point where Decalso is being produced in quantity for the market, to which it is being introduced and distributed by the American Water Softener Company, Philadelphia, builders of complete water softeners in which Decalso is used.

CARBONIZING EQUIPMENT

Continuous Method for Light and Heavy Goods in the Piece

The illustration shows the latest improved drying and carbonizing equipment for cloth brought out by the Philadelphia Drying Machinery Co., Philadelphia, Pa. It is a development of their older machines and is a complete saturating, drying and carbonizing unit designed to save the time lost in handling material and to give level results with goods uniform in texture and strength.

SATURATING TANK

The method is continuous and so arranged that perfect adjustment can be obtained when handling either light or heavy goods. After passing over a spreader, the cloth enters the saturating tank, which contains a removable cage provided with a series of rollers. Acid-proof bronze is used for the roller shafts, bearings and all metal parts within the tank. The rollers are located alternately near the top and bottom of the cage, and the cloth becomes thoroughly saturated, as it travels up and down a number of times through the acid.

As it emerges from the liquor, the cloth passes between heavy rubber-covered squeeze rolls, the pressure of which is controlled by levers and weights. Attention is called to the fact that the cloth is spread out and free from wrinkles when passing through the squeeze rolls. The surplus acid is thus removed and drained back into the tank.

DRYER AND CARBONIZER

Traveling forward continuously, the cloth next passes into the "Hurricane" automatic dryer and carbonizer, where the drying and carbonizing are completed. This machine is built with a structural steel framework, the outside panels being composed of a double thickness of metal and lined in between with asbestos. The rollers, around which the cloth travels, are located alternately near the top and bottom of the dryer, each roller being driven positively, so that there is no strain on the goods. The older machines employed metallic rollers, but wooden-lagged rollers have been preferred in the later machines, the object being to prevent any metallic surface coming in contact with the goods.

This machine is sub-divided into compartments, the greatest amount of evaporating being done in the first compartment and the damp air being removed therefrom by means of an exhaust fan. By the time the goods have passed through the drying chamber, the cloth is absolutely dry, and when it enters the next chamber, which is devoted to carbonizing, it is therefore possible to maintain a dry, baking heat, this high temperature producing the most efficient carbonizing results.

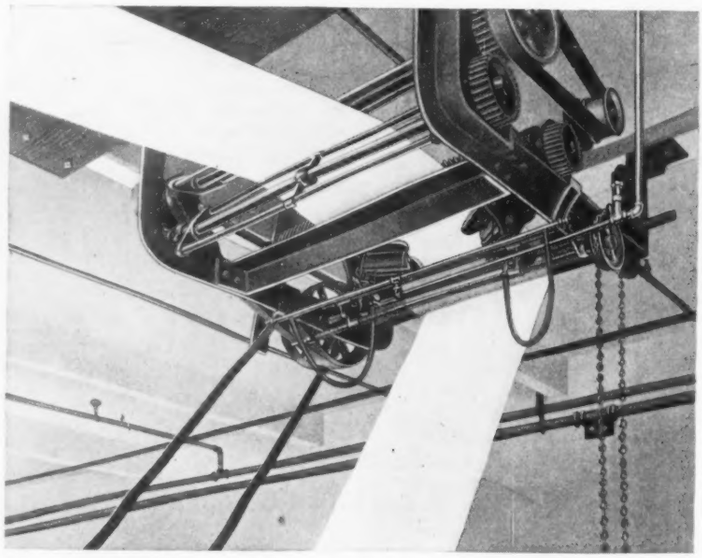
GUIDER WITH SCUTCHER

New Application for Foxwell Pneumatic Guider Facilitates Finishing Work

The use of the Foxwell pneumatic guider and feeder, manufactured by the H. W. Butterworth & Sons Co., Philadelphia, has extended from one machine to another since it was first introduced to the trade, and a new application has now been developed in connection with a scutcher machine. The guider operating with a scutcher is shown in the accompanying illustration. This new use has proved to facilitate the handling of goods in the finishing department, besides eliminating some of the trouble commonly met, and the manufacturers expect that the new application will find a large demand.

The operation of the Foxwell pneumatic guider on tendering, drying, calendering, padding and printing machines is well known to the trade. Fabric tends to travel through finishing machinery with a serpentine motion to the right and left. With this tendency in a machine with a Foxwell guider, the cloth instantly touches a sensitive metal upright or "finger" at one side or the other. When this finger is moved by the pressure of the goods, it opens a valve, which revolves a pair of small cylinders. As these rollers are set at a slight angle to each other, they nip the material between them and straighten it sufficiently to center it in the machines.

The whole device is actuated from a valve worked by compressed air. If a mill has a delivery of compressed air at 30 pounds pressure there is no necessity for an additional air compressor. The guider proper for the new application differs in no way from the standard guider when attached to other machines, but it is necessary for the manufacturers to know where the device is to be used in order that they may furnish stands for attaching.

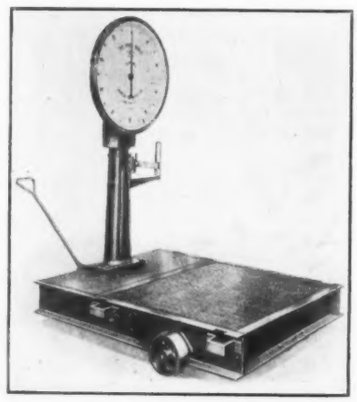


GUIDER OPERATING WITH SCUTCHER

KRON PLATFORM SCALE

Designed Primarily for Weighing Cotton Bales—Portable or Dormant

The illustration shows the new Kron platform scale, designed primarily for weighing cotton bales, in place of the beam or steelyard type. It is being used extensively in many cotton mills in the South and elsewhere. The scale can be used either as a portable or a dormant.



KRON PLATFORM SCALE

When used as a portable scale it can be moved from place to place, and can be turned around in a very small radius. The mechanism is of the self-sealing principle, and therefore the scale can be moved about over rough or uneven floors without injuring its accuracy. It is regularly made with a dial capacity of 1,000 pounds, in 1 pound readings, equipped with a tare beam of 150 pounds and having a platform 46 x 36 inches.

Atlantic Heights Housing Development

(*Continued from page* 137)

the river, which, with an adjoining level tract, is reserved as a park and picnic ground and recreation field. The other streets are located with special reference to the contours of the land. Crescent Way, which though named for a Revolutionary ship is actually in the form of a crescent, sweeps around the edge of the bluff with charming views of the deep Piscataqua and distant countryside. On this thoroughfare several sites have been reserved for possible future houses of a somewhat better class than the rest, which might be needed for foremen, superintendents, etc.

CURVING ROADWAYS AND IRREGULAR BLOCKS

Critics may say that the town plan of Atlantic Heights lacks balance and the technique of the typical town planner's work. If such a remark were made the architects would be able to come back with the truthful rejoinder that the topography of the site did not permit a street plan of the drawing board type; an informal plan was obligatory. Moreover the architects realized that the spirit of the place was that of old New England and the curving roadways and irregular blocks perpetuate the tradition of the old Eastern seaports. Probably they would not have actually attempted to create a second Marblehead, but in several places where projecting ledges border the streets they have kept the houses back on the upper levels, carrying the sidewalks up over the ledges, sometimes with steps, and they intend to plant running vines on the rocks and shrubs in the pockets of soil. Wherever attractive clumps of trees occur small parks are reserved which diversify the perspectives and provide shady playgrounds; and it is this naturalness and absence of sophistication which will be one of the principal charms of Atlantic Heights.

NO ROW HOUSES AND FEW ALLEYS

Kearsarge and Saratoga, Ranger and Preble streets are 50 feet wide; all the others are 40 feet with 18 foot and 26 foot roadways and 4 and 5 foot sidewalks, the rest of the space being grassed. Lots are generally 80 feet deep. The houses are set back from the streets an average of 15 feet. As Atlantic Heights is practically free from row houses there are only one or two alleys. A space for shops and community buildings is reserved on Falkland Place fronting the Common and construction of a row of shops has been begun, while on the Ranger street side is located the Cafeteria which will seat 800 men at one time. A fine eight-room brick schoolhouse is under construction on an extension of Saratoga street on an elevated and sightly location.

Such are the physical features. Water will be supplied from the Portsmouth system augmented by a booster pump and a tank which the architects hope to be able to camouflage with poplars. The sewerage goes overboard into the swiftly flowing tidal river. Electricity comes from Portsmouth. Gas will not be introduced at present on account of the expense attending the necessary enlargement of the local plant. The streets will be shaded by lindens, maples and elms and shrubbery is to be placed around the houses and in the park spaces. Some of the planting is already done, and the material for the balance is heeled in on the site until spring permits the work to be resumed.

RALEIGH WAY UNDER CONSTRUCTION, ATLANTIC HEIGHTS, N. H.

The total developed area for houses and dormitories is 30 acres, of which 9 are occupied by streets. There are, therefore, 10 houses to the gross acre, or 14 if the space occupied by streets is excluded. No house is less than 16 feet from any other.

ROW OF SIX HOUSES, ATLANTIC HEIGHTS

The houses are nearly all built of brick, a very few frame houses being introduced by way of variety. Some are single, of 4 and 5 rooms and bath, but the majority are semi-detached, of 4 and 6 rooms and bath, with a few rows of 4 and 6 houses each. Several different types of plan are used, and the roofs, which are mostly of the gambrel type, are varied by gables and dormers. This similarity was intentional, the architects aiming for restfulness rather than variety. All the houses are heated by furnaces, and are supplied with coal ranges, kitchen cabinets, electric lights, baths, sinks and wash-trays. The doorways show considerable variation, all the designs being studied from old Colonial types in Portsmouth. There are 300 houses, and dormitory accommodation is likewise provided for 400 single men.

The "boarding-house" question is taken care of by arranging a good number of 4-room houses, so that a door can be placed in the party wall, allowing an extra 4 rooms and bath to be added to the household, well separated from the family quarters, but at the same time easily accessible.

VIEW DURING CONSTRUCTION, ATLANTIC HEIGHTS

SOME OF THE ESSENTIAL DETAILS

When the architects, Messrs. Kilham & Hopkins, of Boston, who also acted as town planners, were appointed, they were furnished by the Housing Department of the Emergency Fleet Corporation with copies of certain minimum standards of planning and construction which were to be considered as mandatory. These were, of course, rigidly adhered to, but the architects, feeling that they were insufficient to obtain the best results, laid down a few further rules, which in their extensive past experience in housing matters they had found to be desirable. These rules in general were as follows:

"(1) No front door should open directly from outside into a living room.

"(2) All types of houses should have sun and air on at least three sides, exception being made only for the very few interior houses in the rows, which were introduced solely to effect a saving in street construction.

"(3) Outside entrances to cellars should be provided in all cases.

"(4) As the houses are small, a cottage scale should be adhered to throughout; *i. e.*, instead of attempting to build architecturally imposing blocks of buildings the eave lines were kept in all cases at the top of the first story, head room in the second story, which in all cases is ample, being obtained by the use of gambrels and steep roof pitches. A style of design was adopted which would harmonize with the buildings of old Portsmouth.

"(5) 'Kitchenettes' were discarded in all types in favor of reasonable-sized kitchens.

"(6) In the town plan the back alley, always a problem for cleaning and maintenance, was practically eliminated, this being accomplished by the adoption of the semi-detached house plan instead of rows. Gently curving streets were laid out following natural grades instead of the usual rectilinear lines which take no account of topography. In this item alone many thousands of dollars were saved."

RAPID PLANNING AND CONSTRUCTION

At this writing, Jan. 1, 1919, the entire project is practically finished, with the exception of the public buildings and some of the street work, and the houses and dormitories are occupied. The architects were appointed Apr. 29, 1918. Three weeks later their house plans, specifications and street layout had been completed, passed and orders given to start. The dormitory plans had been approved even sooner and materials had begun to arrive so that work was started about May 20. The first two dormitories were ready for occupancy about July 15. These are permanent frame buildings, plastered inside and covered with stucco outside. The engineers who worked out the details of the water works, sewerage, streets and other utilities are Lockwood, Greene Co., of Boston. The contractors for the entire work are the National Engineering Corporation, also of Boston.

The average estimated cost of the houses is about $2,750, but the actual total can only be definitely told after entire settlement, for the effect of the vexatious labor and "overtime" questions cannot be predicted. It is pleasant, however, to know that the completed dormitories show a saving of some $3,000 each from the original estimate. An interesting feature which effected some economy was the reconstruction by the contractors of the old wharf and the bringing of the lime and some other of the structural materials used direct to the work by water.

ESTABLISHED SEVENTEEN HUNDRED NINETY-ONE THE ONE HUNDRED AND TWENTY-SEVENTH YEAR

UNDER THE MANAGEMENT OF

J. E. CONANT & CO.

AUCTIONEERS

of LOWELL MASSACHUSETTS

Means: — that the greatest net result obtainable will come to hand from the sale of a manufacturing property.

Entire Transaction — From Start to Finish — Taken in Charge

No more dignified—more honorable—or more satisfactory method of disposal—when properly carried through.

Textile World Journal

A Weekly Journal of News, Market Reports and Technical Information

(Copyright 1919, by Textile World Journal)

334 Fourth Ave. NEW YORK, JANUARY 11, 1919 VOL. LV. No. 2

"The District" Fifty Years Ago

Reminiscences of a Well Known Wool Goods Merchant

By *Decatur M. Sawyer*

JANUARY 1, 1869 found the dry goods and manufacturing world moving in a normal and prosperous way. It was four years after the civil war, with all its tumult and upheaval and mills and merchants had adjusted themselves to the ways of peace. Strong men everywhere were coming to the front; "the survival of the fittest" then as always slowly developed in the making and selling of every textile commodity.

WORTH STREET THE CENTRE

In New York the centre of everything textile was Worth St. The New York hospital had moved to its palatial new quarters in 16th St. and the Great White iron block from Broadway to Church St. was built. New stores in Thomas, Leonard and as far as White Street held pretty much all the important factors who were not on Worth St. Some of the great names of war, and pre-war time were passing by. F. Skinner & Co. liquidated about that time; Geo. C. Richardson & Co. took over their accounts. J. S. & Eben Wright became Wright, Bliss & Fabyan. Gardner Brewer then, or soon after, died and the great Amoskeag business passed under the control of J. L. Breamer & Bro. Hoyt, Sprague & Co. were at the peak of their career. They had made a lot of money out of the war and were expanding in every direction.

Daniel O. Tatum has told me that the Sprague sent him to Mississippi to look into the growing of cotton on a grand scale. He came back and reported against it. The brothers listened patiently to his arguments and then Amasa, sitting jack knife fashion in a window seat said "Well, Tatum, I have heard all you have said and no doubt you honestly mean it all but I am hell-bent for raising cotton and want you to go back there and go at it." He went, labored hard, spent lots of money and at the end of three years they gave up the struggle. Hoyt, Sprague & Co., as everybody knows, failed for millions a few years later.

NO DIRECT SELLING

In 1869 practically no mills sold their own goods. Indeed, not until a good many years later, when banking facilities had widened and multiplied did the custom of direct selling develop. The commission houses advanced cash, or for the larger corporations gave their endorsement of the company notes, sometimes for enormous amounts.

The converting business was in its infancy, and largely consisted of trimmings for clothiers and tailors. There was no converting of fancy dress goods.

THE JOBBER IN HIS PRIME

There were twenty-five or thirty good dry goods jobbing houses in New York. A. T. Stewart, unaware of the probability that a great retailer may make a poor wholesaler, was the most prominent among them. He had made a great deal of money in war times and now was spending it. Horace B. Claflin, popular, even beloved, in his soft felt hat and democratic ways had built his great store and was doing a great business. He and Stewart had frequent "drives", consisting of the stocks of various calico printers, well known brands of cotton goods, etc., which attracted great attention from buyers all over the country. The competition between these two houses was interesting to the public, if not always profitable to themselves.

The wholesale clothing business was all within an easy walk of Worth street.

The manufacturers were in lofts scattered about the "district". The goods were mostly made up by the mills before they were sold and the variety of styles infinitely less than now. There was, however, a great deal more dickering about prices and terms, and I think the salesman's lot was no easier than today. Worsteds, hitherto unknown in men's wear, first appeared about this time. The Washington Mills put in combs and began making piece dyes.

I very well remember seeing one of the first sample ends that they made and the interest it aroused among a group of woolen men. Edward Harris was the most famous cassimere maker; the Globe, Jesse Eddy, Hockanum and Bound Brook, all made equally fine goods. Ten run woolen yarn was common in those mills, but today it is unheard of because a better thing has taken its place. The worsted came to stay; it was, as E. H. Van Ingen said, "a clear and distinct step forward in the ancient art of cloth making".

The department store was unheard of in 1869. R. H. Macy, who led off, was already in business in 14th St. but he did not take in "departments", as they were called until later. Some friends of mine in Lynn were among the first to make such an arrangement with Macy, and they made a small fortune out of his sales of shoes for them.

The temptation to record the names of some of the men older than myself who were in the thick of the fight, and were kind to me in those distant years, is well nigh irresistible. They have gone over to the great majority, and a new generation is doing the work they did, and it is as it should be.

A Golden Anniversary Deferred

Many carefully laid plans went agley during the war, and many others will have to be deferred pending readjustment to a peace basis. If this readjustment is completed quickly and satisfactorily the sacrifices will cause no regret.

Textile World Journal cheerfully sacrificed to war exigencies the celebration of the golden anniversary of its predecessor, the Industrial American, which was the first textile paper published in this country; and now, in order adequately to take care of the important reviews of one of the most extraordinary years in the history of the industry, we again defer the pleasure of reviewing the development of the textile industry during the last fifty years.

Some idea of the marked growth and changes that have taken place during this period may be visualized by a perusal of the reminiscenses of two veteran merchants which are presented on this page. It is a striking coincidence that they span almost exactly the period between the close of our great Civil War and the greatest world war.

Knit Goods Fifty Years Ago

Conditions in the Then Selling Market as Compared with To-day

ONE of the oldest and best-known selling agents in the knit goods market, recalling conditions a half century ago, gave the following interesting characterization of the market at that time:

"Fifty years ago the knit goods market was dominated by the seller, and the buyer had little choice but to take what was offered him at the demanded price. In 1869 industry had not fully recovered from the stringency that followed the Civil War, profiteering was promiscuous, raw materials scarce and prices high. Knit goods manufacturers were finding it costly to produce garments, but obtained sufficiently high prices for their production to make extreme profits.

"In those days the selling market extended from White to Worth Street and from Broadway to West Broadway. Mills never sold their own product direct, but through selling agencies. There were few such agencies devoted exclusively to the sale of knit goods, but practically every large cotton and woolen commission house had its knit goods department. Of the houses devoted exclusively to knit goods, the most important were considered Townsend & Yale, at the northwest corner of Franklin and Church streets; J. M. Billings & Co., at the northeast corner of Church and Franklin streets, and James Talcott, at 180 Franklin Street. Commission houses that had large knit goods departments included Eben S. & J. Wright, Hunt, Tillinghast & Co., Hoyt, Sprague & Co., Sprague, Colburn & Co., and A. T. Stewart & Co. Townsend and Yale owned the Glastonbury (Conn.) Mills, A. T. Stewart & Co. sold the product of the Enfield (Conn.) Manufacturing Co., Eben S. & J. Wright sold the Otis Mills, and Townsend & Yale sold Lawrence Mills.

"The production of mills was extremely narrow in variety, and with but two exceptions consisted only of 11 and 12-pound cotton, wool and merino garments. Cuffs were sewed on and all seams were raw. The Otis Mills and the Lawrence Manufacturing Co. were just starting the manufacture of lightweight garments and the women's finer lines, but the bulk of such garments were imported. Mills individually devoted their activities largely to one description; one mill would produce only 'Blue Clouds,' another plain and ribbed 'Oranges,' and another plain whites. Buyers did not expect or demand special colored boxes, special labels or special numbers; they took what was available without fault-finding. Prices at the time were extremely high, due to the effects of the war, and cotton lines sold as high as $7.25 to $7.50, while part wool goods brought up to $12 for 11 and 12-pound garments. The extremeness of these prices is better realized when it is known that they declined a few years later to as low as $1.90 for cotton garments and to $6.50 for wool goods.

"Manufacturers were not troubled with the responsibilities of financing their production, for these duties came within the scope of the selling agents. And mills did not open by seasons. Selling houses took the entire production for a year of the mills they sold, specifying at the year's start the size, assortments and how the goods were to be packed. Goods were delivered to the New York market the year round, where they were stored until sold to jobbers. When the goods were delivered from the mills, the selling agents advanced manufacturers 66 2-3 per cent. of their selling price, and paid the remaining third when the goods were sold to the jobbers. Out of the remaining third, of course, was deducted the selling agents' commission, usually 8½ per cent., interest charges, etc.

"Buyers usually came into the market some time during July and August to place their business. Goods were in store ready for delivery. Few salesmen were out on the road, and those that were, in addition to carrying samples, took along a stock book."

COTTON CONFERENCE

General Committee to Hold Organization Meeting in Washington

The committee which will have in charge the general arrangements for the World Cotton Conference proposed by The National Association of Cotton Manufacturers will hold its first meeting at the New Willard Hotel, Washington, at eleven o'clock in the morning of Friday, Jan. 17. The committee is expected to address itself to the accomplishment of these tasks:

1. The selection of a chairman, vice-chairman, secretary and treasurer.
2. The creation of an executive committee which will have *ad interim* authority to act for the full committee.
3. The creation of a sub-committee which shall arrange for foreign representation at the conference.
4. The creation of a sub-committee on program.
5. The creation of a sub-committee on awards and medals.
6. The creation of a sub-committee which will fix the basis of representation governing the make-up of the conference.
7. The selection of a date and place for holding the conference.
8. The disposal of such other matters as fall properly within the province of the committee.

PERSONNEL OF GENERAL COMMITTEE

The General Committee is made up as follows:

Members designated by the Secretary of Commerce: James Inglis, War Industries Board, Washington; B. S. Cutler, Department of Commerce, Washington; A. A. Hamerschlag, Carnegie Institute of Technology, Pittsburg, Pa.; Sam L. Rogers, Department of Commerce, Washington; E. D. Walen, Department of Commerce, Washington.

Members representing The National Association of Cotton Manufacturers: W. Frank Shove, treasurer Pocasset Manufacturing Co., Fall River; W. Irving Bullard, Merchants National Bank, Boston; Walter H. Langshaw, treasurer Dartmouth Manufacturing Corporation, New Bedford; William L. Lyall, president Brighton Mills, Passaic, N. J.; James R. MacColl, treasurer Lorraine Manufacturing Co., Pawtucket, R. I.; John E. McLoughlin, treasurer La Tosca Knitting Co., Utica, N. Y.; Thomas W. Slocum, Minot, Hooper & Co., New York; E. Kent Swift, Whitin Machine Works, Whitinsville, Mass.; Ridley Watts, Watts, Stebbins & Co., New York; Rufus R. Wilson, secretary The National Association of Cotton Manufacturers, Boston.

Members representing the American Cotton Manufacturers' Association: Arthur J. Draper, president, Chadwick-Hoskins Co., Charlotte, N. C.; Howard Baetjer, Mount Vernon-Woodberry Mills, Baltimore, Md.; Walter Hogg, Dallas Cotton Mills, Dallas, Texas; John L. Patterson, Rosemary Manufacturing Co., Roanoke Rapids, N. C.; H. P. Meikleham, Massachusetts Cotton Mills, Lindale, Ga.; A. W. McLellan, Alden Mills, New Orleans, La.; T. H. Rennie, Pell City Manufacturing Co., Pell City, Ala.; Aug. W. Smith, Brandon Mills, Greenville, S. C.; C. C. Wainwright, Stonewall Cotton Mills, Stonewall, Miss.; J. B. Young, Jackson Fiber Co., Bemis, Tenn.

Members representing the National Association of Finishers of Cotton Fabrics: John P. Farnsworth, president, Providence Bleaching, Dyeing & Calendering Co., Providence; Spencer Borden, Jr., Fall River Bleachery, Fall River, Mass.; James G. Clark, United States Finishing Co., New York; George L. Gilmore, K. M. Gilmore & Co., Somerville, Mass.; J. K. Milliken, Mount Hope Finishing Works, North Dighton, Mass.

Members representing the manufacturers of textile machinery: Frederic W. Easton, Easton & Burnham Machine Co., Pawtucket, R. I.; Frank J. Hale, Saco-Lowell Shops, Boston, Mass.; Lucius J. Knowles, Crompton & Knowles Loom Works, Worcester, Mass.; Sidney M. Paine, General Electric Co., Boston, Mass.; George P. Erhard, The Stafford Co., Boston, Mass.

OTHER MEMBERS OF GENERAL COMMITTEE

Members have been appointed also by the various cotton exchanges of the country, the Southern Cotton Shippers' Association, the American Compress Association, the Texas Cotton Association, the Governors of cotton growing states, together with an additional member from each cotton growing state appointed by the commissioners of agriculture. Among the latter are the following cotton manufacturers: John A. Law, former president of the American Cotton Manufacturers Association, Spartanburg, S. C., and Fuller E. Callaway, La Grange, Ga., also a former president of the same association.

INTERNATIONAL FEDERATION CO-OPERATING

As noted above, one of the matters which will be decided at the meeting in Washington on Jan. 17 will be the make-up of a sub-committee which will go to Europe at an early date to extend formal invitations to associations of spinners and affiliated interests to attend the conference. The itinerary of this sub-committee is being prepared by the officers of the International Federation of Master Cotton Spinners' and Manufacturers' Associations at Manchester, England, who have been prompt and generous in their offers of co-operation in the initial arrangements for the conference.

NEW ORLEANS OR MEMPHIS THE PLACE OF MEETING

Unusual interest in the affair is being displayed by the Cotton Exchanges of New Orleans and of Memphis, and by the other trade organizations and citizens of those cities, and it is now certain that there will be spirited bidding between them for the honor of entertaining the conference, which promises to be the most important gathering of its kind in the history of the textile industry.

GERMAN ANILIN DYES

Opinions from That Country on Future of Industry

WASHINGTON, D. C., Jan. 7.—The following report on the German anilin dye industry has just been received by a Government agency here:

"The question of the future of the German anilin dye industry began to occupy the attention of interested parties very shortly after they realized that the war would probably be of long duration. The question was submitted to the examination of a number of the best German specialists.

"The most optimistic among them pinned their faith to the many earlier statements made by French, Americans, and especially English to the effect that no other country had experts similar to the Germans, who combined science with practice, and consequently competition need not really be feared. After normal conditions had again set in there would be such a craving for German colors that no feeling of antipathy towards Germany would be able to boycott German dyestuffs. Geheimerregierungsrat Prof. Dr. Witt arrives at the conclusion in his pamphlet dealing with the English color industry that this will not in the immediate future develop into an industry of any great importance. 'The history of coloring materials teaches us that England possessed all conditions requisite for the development of the industry, all of which England, however, neglected.' According to A. W. Hoffman it was difficult to see what outside causes have contributed to this. It is certain that England lacked efficient organization and management and that England was not suitable as a market for coloring materials and fine chemical products, where there is required a constant study of detail and particulars and at the same time the larger features must not be lost sight of.

"In this Witt also saw a certain security against the large new English plants. The men at the head of them, both the business men and those representing the Government, were very superficially educated or trained in the technical sides of the question. (Witt bases his opinion upon personal observation in England as well as personal relations with the English manufacturers.) The German color factories have throughout decades been able to lay aside large money reserves owing to wise financial policy and have also reduced the book values of their plants to a minimum.

"The greater portion of intelligent critics do not, however, agree with such optimistic points of view. Owing to the fact that he held different opinions, the manager of the dye factory of Friedr. Bayer & Co. proposed an enlarged company comprising on one side of the Badischen Anilin U. Sodafabrik, the Friedr. Bayer & Co.'s dye-factories and the Aktiengesellschaft Fuer Anilinfabrikation and on the other side the color-works of Meister, Lucius & Bruning, Leopold Cassella & Co., and Hallo & Co., as well as the chemical factories which were previously on Weiler ter Meer and subsequently also the Griesheim Elektron chemical factory.

"Following are the reasons which underlie the proposal for such a trust. The economic conditions after the war are as yet entirely undetermined. We can, however, see clearly that we are facing real danger. During the war competing firms have arisen everywhere in the neutral and enemy countries. We shall meet competition which with Government subsidy and protection will endeavor with all means to dispute the leadership in the world's markets which we have obtained after years of labor and effort. We must be armed for this fight, and it seems to us there is no better way of doing this than by an amalgamation of our home industry along the broadest lines. The understanding would thus principally be a defensive one (how far other factors are to enter into the agreement is later to be determined) but is also to insure the German industry against losses of their own factories as a result of the war. The agreement betweeen the various companies is to last fifty years. The independence and freedom of action of the various firms are to be retained in the future in a similar manner to that of our own factory in the past in its relations with the Badischen Anilin & Sodafabrik and the Aktiengesellschaft fuer Anilinfabrikation. Close cooperation between the individual firms is proposed and above all a constant exchange of all items of experience in production and manufacture. The negotiations were based upon estimates of profits drawn up on uniform principles. Also the future profits which may be figured according to these principles are to be lumped and apportioned among the various companies according to a previously determined scale.

"The profits of special products will merely in the case of certain firms be left out of the common pool during the time of transition.

"In order to protect the improvements obtained through science and practice in chemicals and above all in colors, the well informed Dr. W. A. Dyes suggests during a longer time, that foreign companies should not be given the newest colors for their own use, but rather that the German dye works should work hand in hand with the German textile industry and produce finished colored products, the imitation of which, would at least for a certain period prove impossible abroad. If the newly discovered colors are sold abroad and German color experts teach how to employ them then the German economic gain will be decidedly less than if the future process is undertaken in Germany.

"The same expert believes that a 10-15 years' schooling will be required by those countries that have started new anilin works in order for them to arrive at the point where the German industry now stands."

Latest Cable News

Manchester, Eng., Jan. 9 (Special Cable to the Journal).—Better tone, but buyers discouraged by easier tendency in raw cotton; rates increased. Demand in shirtings and lighter cloths for India, but few practicable bids. Extensive transactions in well known makes of shirtings for China. Yarns cheaper; more business offering.

Bradford, Eng., Jan. 6 (Special cable to the Journal).—Market quiet, but healthy. Production fully maintained at recent level. Excellent French demand for merino yarns; spinners selling two-fold 48s spun from 64s tops at $2.76 to $2.82; two-fold 32s from 44s at $2. No free laps, wools or tops. The Government is the sole issuing center. Prices of wools and tops remain fixed until March 31.

Military work is diminishing and civilian increasing. General confidence is felt in the future. Nobody knows what the British Government will do regarding wool for the United States. Trade here is well able to deal with all arrivals to next July when London sales are expected to be resumed. Fully 33 per cent of worsted machinery is idle. Continental neutral countries urgently want wools, tops and yarns only. Piece goods held up for two years now being shipped more freely.

Knit Goods' Part in the War

All Branches of the Industry Mobilized to Meet Demands of Our Fighting Forces

By *Lincoln Cromwell*

DURING the time this country was in the war the Government took for military uses 54 per cent. of all the men's knitted shirts and drawers and all of the men's wool hosiery made in this country. Prices paid by the Government were based upon cost sheets submitted by contractors, which were carefully compared and checked up with the cost of labor, materials and other manufacturing expenses.

Underwear mills operated in an efficient manner made a net profit of 10 per cent. on war contracts, while the less efficient mills made less than that figure. The need for installing additional equipment, not suitable for civilian products, did not allow hosiery contractors to average a 10 per cent. profit on their Government orders. Hosiery men were further handicapped by delays in getting their new machinery and in securing special counts of worsted yarns. It is not likely that the majority of hosiery knitters made a profit of more than 5 per cent.

AMOUNTS PURCHASED BY GOVERNMENT

The amounts of hosiery and underwear purchased by the Army, Navy and Marine Corps during the war are shown in the following table:

UNDERWEAR.

	Dozen.
Army—	
Summer	7,467,038
Winter	6,308,027
Navy—	
Summer	324,583
Winter	443,910
Marine—	
Winter	60,000
Total	14,603,558

HOSIERY.

	Cotton, dozen.	Light wool, dozen.	H'vy wool, dozen.
Army	1,821,551	5,920,789	5,405,714
Navy	450,783	155,500	718,916
Marine	25,000	.....	.....
Total.	2,297,334	6,085,289	6,124,630

Grand total, 14,507,253 dozen.

GLOVES AND MITTS.

	Canvas, dozen.	J'sey knit, dozen.	Cotton, dozen.	Wool, dozen.
Army	222,000	666,902	....	1,423,699
Navy	....	....	....	676,500
Marine	....	....	13,333	16,583
Total.	222,000	666,902	13,333	2,116,782

Grand total, 3,019,017 dozen.

MISCELLANEOUS.

Army—	
Helmet scarfs, doz.	237,667
Mufflers, doz.	31,754
Mitts, canton flannel	334,333
Knitted hoods, doz.	4,589
Sweaters, doz.	1,000
Bathing suits	150
Navy—	
Jerseys, doz.	11,000
Total	620,343

and 150 bathing suits.

The production of American knit goods mills for 1917, that will give an idea of the enormous volume of purchases by the Government for war purposes, are shown in the following table:

UNDERWEAR PRODUCT.

	1917. Dozen.
Men's Union Suits—	
Winter and summer	3,583,686
Men's shirts and drawers—	
Winter and summer	11,817,569
Ladies' & Misses' knit. underwear—	
Winter and summer, all kinds	13,521,569
Boys' & children's knit. und'wear—	
Winter and summer, all kinds	5,544,526
Total	34,466,925

	1918.
Men's union suits—	
Summer	1,146,250
Winter	1,715,625
Total	2,861,875
Men's Shirts and Drawers—	
Summer	7,757,850
Winter	7,082,975
Total, 1918	14,840,825
Ladies & Misses' knit. underwear—	
Winter & summer vests & pants	8,060,800
Winter and summer union suits	4,040,050
Boys' & children's knit. und'wear—	
Winter & summer, vests, pants, drawers & wrappers	3,317,750
Union suits	1,842,500
Total	14,840,825

HOSIERY PRODUCT.

	Cotton, dozen.	Woolen, dozen.	Silk, dozen.	Surg., doz.
Men's	34,208,300	11,085,550	2,728,300	9,000
Women's	20,011,550	913,100	9,304,250	....
Child'n's	19,462,550	1,113,100	103,850	....
Infants'	1,863,950	690,150	.....	....
Total.	75,546,350	13,801,900	12,136,400	9,000

Grand total, annual production, dozen 101,493,650

PRICE ADVANCES REASONABLE

When the situation is considered in its entirety it will be realized that the sharp advances in prices of hosiery and underwear were not unreasonable. The Knit Goods Section of the War Industries Board has compiled figures showing mill prices in 1915, 1916, 1917 and 1918 for the standard grades of cotton underwear and hosiery, which show, in addition to the upward trend of prices to September, 1918, the increase in knitting mill labor costs and the prices of cotton yarns. Added to these are mill prices in the same years for staple cotton cloths.

The compiled figures are as follows:

	Average Price During— 1915.	1916.	1917.	1918.
Spot Cotton, per lb.	$0.11	$0.16	$0.25	$0.32
Mill Wages	....	....	....	....
MILL PRICES AVERAGED FROM QUOTATIONS FOR STANDARD MAKES.				
No. 10 Carded Yarn, per lb.	.16	.26	.39	.59½
No. 20 Carded Yarn, per lb.	.18½	.29	.43	.64
No. 30 Carded Yarn, per lb.	.21	.36	.51	.61

COTTON CLOTHS.

	June— 1915.	1916.	1917.	1918.
Prints—7.60 yards, 64 x 60	$0.02⅞	$0.03⅞	$0.06⅝	$0.13
Prints—5.35 yards, 38½ inches, 64 x 60	.03⅞	.05⅝	.10	.19
Prints—4.75 yards, 39 inches, 68 x 72	.04⅝	.06⅝	.11¼	.21
SHEETINGS.				
5-yard Sheetings, 39 inch, 80 x 80	.06⅛	.09	.11⅝	.26
4-yard Sheetings, 36 inch, 56 x 60	.04⅝	.06½	.11¼	.23
3-yard Sheetings, 36 inch, 48 x 48	.05⅝	.07⅝	.13¼	.27½
3-yard Drills, 30 inch, 60 x 48	.05⅝	.07¾	.13⅜	.27½

COTTON UNDERWEAR

11 lb. Northern Ribbed Shirts and Drawers, dozen	3.29	3.60	5.13	7.31
12 lb. Northern Fleeced Shirts and Drawers, dozen	3.28	3.51	5.38	8.31
16 lb. Northern Ribbed Men's Unionsuits, dozen	6.26	6.83	9.90	13.85
4½ lb. Balbriggan Shirts and Drawers, dozen	1.80	2.31	2.76	4.50
5½ lb. Balbriggan Shirts and Drawers, dozen	3.44	3.42	3.86	5.80
Women's 50c Grade Vests and Pants, Winter, dozen	3.31	3.45	5.09	7.95
Women's 25c Grade Vests, Summer, dozen	1.67	1.71	1.92	2.56
Women's $1.00 Grade Unionsuits, Winter, dozen	6.19	6.66	9.15	12.00
Women's 25c Grade Unionsuits, Summer, dozen	1.67	1.75	2.04	3.19
COTTON HOSIERY.				
Men's 2 lb. 84 needle ½ Hose, dozen	.57	.64	.88	1.42
Men's 144 Needle ½ Hose, dozen	.57	.57	.84	1.28
Men's 200 Needle ½ Hose, dozen	.82	.97	1.20	1.65
Women's 10c Black 108 Needle, dozen	.60	.63	.91	1.26
Women's 15c Black 220 Needle, dozen	.93	.97	1.39	1.88
Women's 25c Black Cotton, dozen	1.70	1.69	1.95	2.55

Evidence is not lacking in this compilation to prove that underwear and hosiery have not advanced to anything like the percentage of increase shown by cotton yarns and cloths. The quotations given for Northern fleeced and ribbed are largely fictitious, as the machinery of the fleece mills was taken over practically entire by the Government and put on cotton-and-worsted, or wool-spun heavyweight winter underwear for the army, and half of the machinery ordinarily making heavy cotton ribbed shirts and drawers was taken over to make the Government worsted-and-cotton underwear. The only other item showing a 200 per cent. advance in four years is the 4½-pound balbriggan shirt and drawer, which had been made without profit before the war. The former 50 cent balbriggan shirt and drawer had shown an advance of only 110 per cent. when the yarns going into it have advanced 277 per cent. The current mill prices for underwear and hosiery do not include an unreasonable profit to the knitter, who has to buy his yarns. Retail prices are still below the basis of mill costs and must be higher next year unless the cotton and wool markets go to pieces.

MUST CREATE CONFIDENCE IN PRICES

"Lack of confidence in prices is the chief obstacle to trading in knit goods. With the ending of the war people naturally look for a decline in war-time prices. They do not take into consideration the fact that manufacturers are still facing the same high costs of cotton, wool and labor. People hear of large Government-owned stocks of wool which are to be auctioned, and see no reason for high prices being continued on that staple. They realize that Europe got along on short cotton rations for the last four years, and wonder whether the present high price of cotton will tempt European mills to stock up at once on such cotton. These thoughts produce a lack of confidence that manufacturers must overcome before they can do any active business.

"There is no apparent intention on the part of Government officials to dispose of such holdings by auction sales. If the goods were placed on the market they would have relatively little effect.

The underwear is of an exceedingly good quality, but, being shirts and drawers, is not suited for general civilian wear, which wants union suits. The wool stockings are not wanted by our civilian trade, as cotton half hose is practically the only kind worn here. Both this army underwear and this army half hose are exactly what is used and respectively needed in Europe."

SECOND SERIES SALES

Government Wools Less Attractive and Prices Lower

Boston, Jan. 6.—Erratic, lowering prices characterize the second series of sales of Government wool last week. Dealers attending the sales were amazed at the low stops evidenced on one offering of a certain quality and then the withdrawal of the same quality although the next lot may have been bid higher.

Epitomized reports of the sales follow:

Jan. 3.—Attendance at the second day's sale of the second series of Government wool auctions was smaller and bidding was very lethargic. Choice Ohio delaine sold up to $1.70 as against the Government issue price of $1.95. Choice Ohio half bloods brought as high as $1.54, against the Government issue price of $1.75. Choice three eighths blood sold at $1.30, with the issue price of $1.55. Choice quarter blood sold up to $1.29 against issue price of $1.40. Demand for territory clothing wools was very selective and many lots were passed without bidding. A large number of inferior to average lots were offered only to be withdrawn.

The first 45 offerings of fine and medium fine territory wools resulted in 22 withdrawals.

The offerings today comprised 1,900,000 pounds of domestic fleece wools, 5,000,000 pounds of territory wools and 250,000 pounds of Texas wools.

Jan. 4.—At the opening of the third day's sales of the second series of Government wool auctions, less than fifty bidders seats were occupied. Today's offerings consisted of 700,000 pounds of greasy pulled wools and 1,700,000 pounds of foreign and domestic scoured wools. There was no demand for pulled wools and out of 49 lots offered 36 were withdrawn. The demand for fine scoured Australian wools was limited, 20 lots being withdrawn out of 39 offered. Two lots of fine Australian carbonized sold at $1.43 and $1.44, the former of these being withdrawn at $1.40 and finally sold to a belated bidder at $1.43.

Prices, Sept., 1918.	Percentage of Increase of Mill Prices over 1915, in 1916.	1917.	1918.	Sept., 1918.
$0.32	45%	127%	190%	190%
....	25%	50%	75%	100%
.63	60%	144%	272%	294%
.69¾	57%	132%	235%	277%
.80	71%	143%	190%	281%

Gov., Oct., 1918.	Percentage of Increase over 1915 Prices, in 1916.	1917.	1918.	Gov't Oct., 1918.
$0.11¼	34%	123%	345%	291%
.15½	45%	158%	390%	300%
.18	38%	143%	354%	289%
.22	49%	98%	330%	259%
.17½	37%	137%	384%	279%
.29	35%	131%	379%	248%
.19¼	36%	133%	382%	251%

	Percentage of Increase, Sept., 1918. Over 1918.	1917.	1916.	1915.
19.50	44%	104%	191%	220%
11.00	50%	131%	257%	235%
18.00	30%	81%	163%	188%
5.50	22%	100%	139%	205%
7.25	25%	87%	112%	110%
8.00	13%	56%	132%	142%
3.62½	41%	88%	109%	117%
13.00	8%	42%	98%	109%
4.50	50%	120%	157%	170%
1.82½	25%	106%	184%	219%
1.50	17%	80%	163%	163%
2.32½	41%	94%	140%	170%
1.60	25%	77%	154%	166%
2.20	17%	57%	127%	136%
3.15	25%	62%	117%	115%

EXCEED STAMP QUOTA

Worsted Men Purchase Large Amount of War Savings Stamps

With less than 3,000 people from whom subscriptions could be taken, the wool and worsted division of the National War Savings Committee has turned in $474,693.50 as a result of its War Savings Stamp sales in New York City, exceeding its quota by over $70,000.

According to Secretary David Cummings of the Pioneer Division, this remarkable showing is due to a great extent to the efforts of Morton H. Meinhard, executive chairman of the Woolen and Worsted division, and of Harry J. McAteer, vice-chairman. With all of the factories of the industry located in Massachusetts and Connecticut, these men organized a zone system in the territory assigned them and with the aid of helpers, secured a total of 2,913 pledge cards, from the members of the firms and the sales personnel located in New York.

This is one of the largest oversubscriptions so far reported to the Pioneer Division, of which William Fellowes Morgan is chairman.

INCREASED ACTIVITY

In Worsted Manufacturing Shown by Active and Idle Wool Machinery Report

WASHINGTON, D. C., Jan. 7.—An increase in the manufacture of worsted goods in the United States is indicated by the monthly active and idle wool machinery report just issued by the Bureau of Markets, United States Department of Agriculture. Only 18 per cent. of the total worsted combs reported were idle on Dec. 2, 1918, as compared with 24 per cent. on November 1, while 27 per cent. of worsted spindles reported were idle on December 2, as compared with 30 per cent. on November 1.

A slight increase is shown in the case of idle woolen machinery, the figures for sets of cards being 14 per cent. on December 2, as compared with 12 per cent. idle on November 1.

Domestic wool is used largely in the manufacture of worsted goods, and the report indicates a fair demand for these wools.

About 77 per cent. of all looms making woolen goods were in operation on Dec. 2, 1918, while 86 per cent. of woolen cards, 82 per cent. of combs, 84 per cent. of woolen spindles, and 73 per cent. of worsted spindles were also in operation on that date. With reference to machines engaged on war orders, the report shows a slight decrease in the case of active woolen machinery and a marked decrease of active worsted machinery.

The compilation of figures of active and idle wool machinery, of Dec. 2, is as follows:

	Looms					Spinning Spindles	
	Wider Than 50-Inch Reed Space.	Under 50-Inch Reed Space.	Carpets and Rugs.	Sets of Cards.	Combs.	Woolen.	Worsted.
In operation	45,905	14,605	2,601	5,495	1,869	1,749,446	1,646,041
Idle	13,304	4,846	3,587	881	406	335,073	620,698
Total	59,209	19,451	6,188	6,376	2,275	2,084,519	2,266,739
PERCENTAGE OF IDLE MACHINERY TO TOTAL REPORTED							
Dec. 2, 1918	22.5	24.9	58	13.8	17.8	16.1	27.4
Nov. 1, 1918	21.1	25.8	52.8	11.1	23.8	11.9	30.1

NUMBER OF MACHINES IN OPERATION

	Shift.													
	Sgle.	Dble.	Sgle.	Dble.	Sgle.	Dble.	Sgle.	Dble.	Sgle.	Dble.	Single.	Double.	Single.	Double.
Dec. 2, 1918	44,528	1,377	14,603	2	2,558	43	4,976	519	1,546	323	1,588,242	161,204	1,564,781	81,260
Nov. 1, 1918	44,724	2,258	13,919	146	3,413	53	4,980	767	1,642	356	1,626,205	284,432	1,489,852	88,040
PERCENTAGE ON GOVERNMENT ORDERS TO TOTAL IN OPERATION														
Dec. 2, 1918	55.4	2.3	17.9	...	12.7	1.5	48.8	5.2	24.8	6.7	46.5	4.3	44.6	2.7
Nov. 1, 1918	57.5	3.7	17.5	.6	16.6	1.4	52.7	10.3	52.4	15.8	53.1	10.8	59	5.5

In an effort to obtain complete information regarding the active and idle wool machinery in the United States as of Dec. 2, 1918, schedules were sent to 1,058 wool manufacturing concerns. In addition to the reports tabulated above, 41 concerns replied stating that their equipment consisted of machinery not listed on the schedule, and reports had not been received from 122 concerns at the time the compilation was completed.

CARPET WOOL AUCTION

Good Competition and Prices About 15 to 25 Per Cent. Off

PHILADELPHIA, Jan. 8 *(Special).*—There was a good-sized audience at the open auction held by the Government to-day at the Manufacturers' Club for the sale of carpet wool held by the Quartermaster's Department. At least 125 manufacturers and dealers occupied bidders' seats when William D. Oelbermann, the Government carpet wool distributor, called the assemblage to order. He announced that the stocks of carpet wool in Government hands amounted to about 25,000,000 pounds, of which 75 per cent. was grease and 25 per cent. scoured, with 85 per cent. carding and 15 per cent. combing. The rules governing the sale were the same as those which prevailed at the Boston auction. George C. Freeman, of the auctioneering firm of Samuel T. Freeman & Co., was the auctioneer.

The first lot of White Sining Combing China wools provoked good competition and sold for 40 cents to the Firth Carpet Co., Firthcliffe, N. Y. Good competition was shown for the better grades of combing wools on account of the limited quantities existing. On the best grades of fleece wool and of good Willowed China wools buyers also showed spirited competition. Lower grades, however, resulted in heavy withdrawals. Out of 155 lots offered, there were 91 withdrawals, the quantity withdrawn being about 25 per cent. of the total offerings of 4½ million pounds. Manufacturers and dealers both figured in the bidding. The sale was generally regarded as having been fairly successful where the better grades of wool were offered. Prices, it is estimated, were from 15 to 20 per cent. below the Government issue of July 30. The highest price realized at the sale was bid by Thomas Kenworthy's Sons, of Philadelphia, and James Lees & Sons Co., Bridgeport, Pa., being 50 cents for white Mongolian wool, estimated at 61 cents scoured.

On White Sining Combing China, prices ranged from 35 to 40 cents in the grease. Good White Grease China from 27 to 35½c; good Willowed White China, 32 to 41½c; Willowed White Autumn China, 27 to 37c; good Willowed Grade China, 29 to 31½c; White Mongolian, 41 to 50c.

BOSTON WOOL AUCTIONS

Minimum May Be Lowered to British Issue Basis

Next week's auction sales of Government wool at Ford Hall, Boston, will cover three days as originally scheduled (Jan. 15, 16 and 17), it having been decided to offer a small assortment of pulled and scoured wools on Friday. Total offerings will aggregate 13,500,000 lbs., as follows: Jan. 15, 4,000,000 lbs. Australian, 750,000 Cape and 1,200,000 South American; Jan. 16, 1,250,000 lbs. domestic fleeces and 5,000,000 lbs. territories; Jan. 17, 300,000 lbs. pulled and 1,000,000 lbs. scoured.

MAY LOWER PRICE LIMITS

A rumor, lacking official confirmation, was current in the Boston market Wednesday to the effect that, prior to the opening of the next auction sales, it will be announced that the upset or minimum prices will be equivalent to British issue prices on wool for use in civilian goods.

FEBRUARY WOOL AUCTIONS

One Each Week Scheduled in Philadelphia or Boston

Washington, Jan. 6.—Following are the tentative dates for wool auctions in February.

Carpet wools, Philadelphia February 5 and 6.

General line of wools, Boston, February 12, 13 and 14.

Wools other than carpet, Philadelphia, February 19 and 20.

General wools, Boston, February 26, 27 and 28.

This program is expected to be continued with possibly a few changes for some time to come.

Wants Single Sales Commission

WASHINGTON, D. C., Jan. 6.—Representative Madden, of Illinois, has introduced a bill in the House providing for the appointment of a single sales commission to dispose of the surplus stock in all Government departments to prevent the breaking of the market in many commodities through the precipitate dumping of accumulated war supplies.

This commission, according to the Madden bill, should be composed of ten members, appointed by the President, who would make inventories, appraise the surplus stocks and dispose of them in such a way as not to interfere with the normal course of trade. Mr. Madden believes that this would prove a saving to the Government as well as a protection to the industries.

E. B. Moore & Co. Continue

The firm of E. B. Moore & Co., woolen commission merchants, 257 Fourth avenue, continues from Jan. 1, 1919, with Edgar B. Moore and Edgar H. Stevens, of New York, as partners. Mr. Moore stated Thursday that he continues his worsted yarn and other interests as well. Plans were progressing in organization of the force and accounts in the new partnership, Mr. Moore said.

YIELDING TO ADJUSTMENTS

Manufacturers Would Rather Not Have Assumed Half-Processed Material

According to reports current in the goods market, acceptances of the Government proposals to discontinue the manufacture of contracts on melton suitings, overcoatings, puttee and jerkin cloth have been the general rule. Much of the disturbed and hectic condition of the goods market is attributed by factors to the arbitrary conclusion of these enterprises, and factors speak of the manner of the distribution of losses, still, as a shock to the reconstruction plans that were to have been normally expected.

Certain factors feel that it was rightly expected that the Government would have allowed the yardages to be run out, would have charged up the manufactured goods to war cost and would have recovered all that was possible from the 80 per cent profits tax. There are selling agents who still hold to the view that the average loss would have been on a parity only with the present method of discontinuing manufacture, and that, taken altogether, the stoppage of processing by the method that is called "termination" of the contracts, amounts to a cancellation of the goods on the looms and is of no material help in turning over to civilian production. In fact, shutdowns and the lack of civilian orders, makes a worse state than could have been anticipated, they say.

A few speak of the change in termination plans as a radical upset and are not at all comfortable with the situation which saddles unfinished materials on them. They feel that the Government should have taken yarns and wool. Despite the liberal allowances of 30 and 50 per cent of cost, they to keep the material, they feel that the Government should have taken the odds and ends for distribution, at cost plus 10 per cent, as a more natural way of running with and not against usual buying, producing and selling habits.

With the decrees made as they are, numerous form letters in acceptance were sent in more as a matter of a clearance of the situation than as an acceptance of it in principle. Unused yarns and unused wool, in broken lots, too often are such a widely different grade and count from that used in their usual production, that special sales will have to be negotiated with other factors to avoid absolute loss.

EXPORT PERSONNEL

John R. Munn Heads Textile Alliance Corporation

The board of directors of the Textile Alliance Export Corporation recently elected the following officers: President, John R. Munn; first vice-president, Frederick K. Rupprecht; second vice-president and general manager, F. A. Fleisch; assistant treasurer, R. M. Johnson; secretary, W. C. Bates.

The corporation has engaged offices at 45 East Seventeenth St., New York City, and is preparing to offer its services to the members of the textile industry for export trade.

It is understood a complete statement regarding the opportunities for selling agents will be issued late this week.

RAW COTTON CROP

Census Report on Yield, Consumption, Etc., for 1917

WASHINGTON, D. C., Jan. 9.—A bulletin soon to be issued by Director Sam L. Rogers, of the Bureau of the Census, Department of Commerce, and prepared recently under supervision of William L. Austin, chief statistician in charge of the inquiry, shows, for the American crop of 1917, a production of 11,248,242 running bales of cotton, counting round as half bales (equivalent to 11,302,375 bales of 500 pounds each, gross weight), worth $1,532,690,000 to the growers, and of 5,040,000 tons of cottonseed, worth $333,550,000; and for the "cotton year" ended July 31, 1918, a consumption of 6,566,489 bales (excluding linters), exports of 4,288,420 bales, net imports of 217,381 bales, stocks on hand at the beginning of the year of 2,720,173 bales, and at the end of the year of 3,450,188 bales, and cotton spindles active at some time during the year to the number of 34,542,665. For the entire world the production of lint cotton destined for factory use was 17,410,000 and the mill consumption 17,701,000 bales of 500 pounds net weight.

The American crop of 1917 fell below that of 1916 by 147,555 equivalent 500-pound bales, or 1.3 per cent., but exceeded that of 1915 by 110,555 bales, or 1 per cent. Each of these three crops was smaller than that of any year from 1910 to 1914, inclusive.

Texas alone produced 3,125,378 equivalent 500-pound bales, or nearly 28 per cent. of the total crop of 1917; and three States—Georgia, South Carolina and Texas, each with an output of more than a million bales—produced 55 per cent. California, with a production of 57,826 bales in 1917, outranked Florida and Virginia. Cotton growing in Arizona has made rapid progress during recent years. The production in that State in 1917, 21,737 equivalent 500-pound bales, was, for the first time, greater than the Virginia crop, 18,777 bales.

The crops of Alabama, Arkansas, Florida, Missouri, North Carolina, Tennessee, Texas and Virginia were smaller in 1917 than in 1916; but Arizona, California, Georgia, Louisiana, Mississippi, Oklahoma and South Carolina showed increases.

ACREAGE AND YIELD PER ACRE

According to the revised estimates of the Department of Agriculture, the acreage from which the crop of 1917 was harvested amounted to 33,841,000, the smallest, with the exception of that for 1915, shown for any year since 1910. The outbreak of the European war brought about a demoralized condition in the market, which had the effect of cutting down cotton planting in 1915, the acreage harvested that year being only 31,412,000, as against 36,832,000 for the preceding year. In 1916 there was a considerable increase, to 34,985,000, but the following year witnessed a decline to 33,841,000 in the acreage harvested. The acreage planted last year was 34,925,000, of which about 3 per cent. was abandoned. The acreage planted in 1918, 37,073,000, represents an increase of 6 per cent. over 1917.

The average production of lint per acre in 1917, as estimated by the Department of Agriculture, was 160 pounds, which compares with 157 pounds in 1916, 170 in 1915, and 209 in 1914. The average yield per acre in Louisiana in 1917 was 210 pounds, in South Carolina 208 pounds, in North Carolina 194 pounds, in Missouri 190 pounds, and in Arizona and California, where cotton is grown on irrigated land, 285 and 242 pounds, respectively. When conditions are favorable, the yield of cotton in some localities approaches a bale to the acre. This is largely the result of improved cultural methods, which include thorough preparation of the soil, the use of commercial fertilizers, rotation of cotton with leguminous crops, and frequent and intelligent cultivation. With the more general adoption of intensive farming there may be a large increase in production without any general extension of acreage.

CONSUMPTION AND EXPORTS

During the year ended July 31, 1918, the mills of the United States consumed 6,566,489 running bales of cotton. This consumption comprised 6,296,756 bales of domestic upland cotton, 85,939 bales of sea-island cotton, and 183,794 bales of foreign cotton. In addition, 1,118,840 bales of linters were consumed. The stocks held in the country on July 31, 1918, aggregated 3,450,188 bales of lint cotton and 439,917 bales of linters.

The exports during the fiscal year ended June 30, 1918, 4,641,023 equivalent 500-pound bales, were less than for any preceding year since 1893, and fell below those of 1917 (6,176,162 bales) by nearly 25 per cent. The greatest amount of cotton exported during any fiscal year in the history of the industry is shown for 1912—11,070,251 bales. For the following year the exports fell to 9,124,591 bales, and during the fiscal year 1914, which ended just prior to the outbreak of the European war, 9,521,881 bales were exported. Since that year the exports have declined, although 1917 showed a slight increase as compared with 1916. Less than half as much cotton was exported in the fiscal year 1918 as in the fiscal year 1914.

The items which make up the 1918 total are: Exports to the United Kingdom, 2,387,101 bales; to France, 658,553; to Italy, 369,213; to Spain, 259,194; to Russia, 15,945; to Holland, 10,098; to other European countries, 82,572; to Japan, 583,546; to Canada, 249,973; to Mexico, 10,706, and to all other countries, 14,122. The exports to Belgium, Germany and Austria-Hungary dropped to very small amounts during the fiscal year 1915 (the first month of which, July, 1914, preceded the outbreak of the war), and since that year no exports whatever to those countries have been made. The only countries the exports to which during the fiscal year 1918 exceeded those during the preceding year were Japan, Canada and Mexico.

COTTONSEED AND ITS PRODUCTS

Of a total of 5,040,000 tons of seed produced in 1917, 4,251,680 tons, or 84 per cent., were crushed. The products manufactured were valued at $360,736,000, an amount approximately 25 per cent. greater than that for 1916 and twice as great as that for 1915. This increase in value, however, was due to the great advances in the prices of the several products. This total was made up of the following items: Cottonseed oil, $217,902,000; cake and meal, $97,352,000; hulls, $18,878,000; linters, $26,604,000. The quantity of each product, except hulls, showed a decrease as compared with the preceding year; but the total value, as well as the value of each product except linters, represented an increase. The production of linters increased from year to year between 1909 and 1916, when the total output amounted to 1,273,345 bales, valued at $45,193,000; but the production in 1917 fell to 1,080,802 bales, valued at $26,604,000.

Southern Knitters Meet

Natl. Assoc. of Hosiery and Underwear Mfrs. at Charlotte

THE National Association of Hosiery and Underwear Manufacturers held a meeting at Charlotte, N. C., on Wednesday of this week. President T. H. Johnston presided and called the meeting to order promptly at 10 o'clock in the main lobby of the Selwyn Hotel. There were present more than one hundred and fifty men interested in the knitting industry. President Johnston stated the object of holding the meeting in the South was to give the Southern members of the National Association a better opportunity to get together and discuss their problems in a more intimate way than could be done at the annual meetings. The keynote of the meeting was one of optimism and, while members stated frankly that few if any orders were being booked at present, yet they were confident that jobbers and retailers of knit goods would soon be in the market, and that the manufacturers could afford to wait a while if necessary for a good, healthy demand for knit goods at prevailing or higher prices.

President Johnston delivered an inspiring address that met with frequent and hearty applause. He declared emphatically that there was "no standing room in this country for a pessimist." He paid a high compliment to the various war trade committees who had prevented reckless cancellation of war orders for knit goods when the armistice was signed. He said, however, that in some sections the knitters felt that they had gone through an epidemic of "cancellitis." President Johnston urged that the buying of yarn on a net weight basis should be adopted in preference to the present system of allowing 2 per cent. for cones. He said it had been proved in many cases that the 2 per cent. was very unfair to the knitters; that this matter had been brought to the attention of Government buyers and that they had been convinced of the fairness of buying yarns on a net weight basis. The mills were thanked for their hearty co-operation with the Government during the war, and it was pointed out that at no time did Uncle Sam suffer for hosiery or underwear. President Johnston closed his address by saying that he believed we were entering upon the greatest period of prosperity that the world has ever seen, and reminded the members that already great plans were being made to sell immense quantites of knit goods abroad.

An interesting session of the meeting was made up principally of short talks by the members present, and it was evident that very few mills are selling goods in any quantities or for any very distant delivery, and there was considerable sentiment against any effort to force business by granting concessions in price at this time. Many members gave it as their opinion that wages would undoubtedly remain as high as at present; also that cotton and cotton yarns would not decline below present levels. There was an almost unanimous opinion expressed to the effect that it would be unwise to sell far ahead at the present time, and three months was mentioned as a maximum to which any mill might safely go. One large Eastern knitter was reported as offering goods at an advance of 10 per cent. A large Southern hosiery firm which sells direct to the retail trade and has representation in every State in the Union, and in twelve foreign countries, says they look for at least five years of good business. This same concern reported that they had on their books orders from foreign countries for about four hundred thousand dollars' worth of hosiery, and that instead of the buyers talking cancellation they were clamoring for early shipment. Great possibilities were expressed in the outlook for export trade, and the necessity of gaining and retaining the confidence of the foreign customer by delivering always goods up to sample was dwelt upon.

Following the morning session the members and guests were invited to a luncheon which was served in the ballroom of the Selwyn Hotel. This luncheon was tendered by the textile interests of Charlotte. Music, dancing and some clever vaudeville acts, interpersed with speeches from members, made the luncheon hour a very happy one.

At 3 o'clock in the afternoon a closed or executive session was held at which it was agreed that the various members would get together in groups according to the class of goods made and discuss matters of vital import to themselves.

WOOL KNITTERS CONFER

Reconstruction Problems Considered by New York State Manufacturers

ALBANY, N. Y., Jan. 6 (Special).—The meeting of the Knit Goods Manufacturers of America, held at the Ten Eyck today, was one of the most successful ever held and was attended by thirty of the leading wool underwear manufacturers of New York State. The meeting was presided over by James H. Shine, president of the Hope Knitting Co., Cohoes. Reconstruction problems, the wool situation, the eight-hour day and general trade conditions were the subjects of addresses. It was decided to open wool lines on Jan. 15.

The general tone of the speakers was optimistic and all expressed confidence that 1919 would see a great wave of prosperity in the knit goods industry. The opinion of those present was that the opening of the woolen lines would find ready demand for the goods in view of the fact that by next fall practically all of the soldiers and sailors will have been discharged from service.

No decided opposition was expressed by the manufacturers to the eight-hour day—provided that it goes into effect in all textile centers at the same time. They feel, however, that it would be unfair to the manufacturers to have the eight-hour day effective in one section and not in another.

Jobbers' Convention

The fifteenth annual convention of the National Wholesale Dry Goods Association and auxiliary buyers' associations will be held at the Waldorf-Astoria Hotel, Jan. 16. Reports and addresses on vital topics by prominent factors in the trade feature the several programs. The Jobbers' Association of Knit Goods Buyers will meet at 10.30 a. m. and 2.30 p. m., Jan. 13. The Jobbers' Association of Dress Fabric Buyers meets at 10 a. m. and 2 p. m., Tuesday, Jan. 14. The Jobbers' Association of Notion Buyers meets at 2 p. m., Wednesday, Jan. 15. The annual banquet is Wednesday, Jan. 15, at 7 p. m. F. A. Patrick of Duluth, Minn., president of the association, will be toastmaster.

FINANCIAL MARKETS

MILL SHARES STRONG

Only Protracted Depression Can Weaken Strong Position

BOSTON, Jan. 8.—While the new year has opened with comparatively few transactions in textile shares, it is apparent that it is due quite as much to the strength with which values are held as to any indisposition on the part of investors to increase their holdings of textiles. Some investors are still doubtful as to whether the declines registered since the armistice was declared have been sufficient to counterbalance the loss of profitable Government business and the possibility of a more or less protracted depression; they are hesitating about increasing their holdings of textile shares for much the same reason that the customers of textile mills are delaying further purchases of the latter's products. A new note of confidence must be struck before liberal purchases will be resumed in either market.

BASIS OF CONFIDENCE IN TEXTILE SHARES

A comparison of current share values of textiles with those which ruled in July, 1914, just before the world war, and with the course of prices since then can hardly fail to revive confidence in the stability of present prices of most stocks. The net advance since July, 1914, seldom exceeds more than 50 points, and for all New England stocks does not average much over 25 points. The high point for most of these stocks was touched in 1917, and since then there has been a slow but steady readjustment to a basis that is well warranted by the exceedingly strong position of most mills, and that fully discounts the deductions necessary to meet Federal taxes, the shrinkages in inventories due to the decline in goods values, and the losses that may result from a period of slow business. Most mills have built up the largest cash reserve in their history, in addition to the laying aside of increased reserve for depreciation, taxes, etc. In few instances have they paid out more than a small portion of their extra earnings in extra dividends, and sooner or later additional extras must be declared or increased reserves must be capitalized. It is hardly possible that business can be prostrated long enough to materially weaken the present strong financial position of most textile mills.

MASSACHUSETTS CONSOLIDATION

The Massachusetts Cotton Mills, Lowell, Mass., is to increase its capital stock from $3,000,000 to $5,000,000 for the purpose of exercising its option to purchase the Massachusetts Mills in Georgia at cost after giving sixty days' notice. This was one of the terms of the lease, entered into in 1894. The Georgia company is capitalized at 2,000,000. Stockholders of the Massachusetts Mills may subscribe at par to the new issue on the basis of two new shares for each three shares owned, 10 per cent. to be paid with subscription and the balance by March 10. For several years the Massachusetts Cotton Mills had been accumulating a reserve, which was supposed to be for the purpose of eventually taking over the Georgia concern, and at the recent stockholders' meeting the directors were questioned as to why the new stock issue was not made a stock dividend, and all seemed to be satisfied with the reply that it would not be conservative financing with conditions as uncertain as at present. Massachusetts stock has advanced steadily during the last few years, from a low of 114 in 1915 to a high of 142 last year, and is now quoted around 132. The rights are being traded in around $9.00.

TEXTILE STOCKS AT AUCTION

The following textile stocks were sold at the Boston auctions Jan. 2:

Shrs.	Mill.	Par.	Sale.	Chge.
100	Arlington	$100	108	— 2
1	Androscoggin*	100	180	—10
10	Great Falls	100	183	+ 3⅜
9	Bigelow-Hartford pfd	100	95¾	+12½
25	Lanett	100	158	— 4½
1	Naumkeag*	100	163	— 3½

146 Total.

* Ex-div.

The following textile shares were sold at the Boston auction, Jan. 8:

No.	Name.	Par.	Sale.	Change.
7	Pepperell	$100	205	+ 5
1	Great Falls	100	185	+ 5⅜
8	Tremont & Suffolk	100	160½	+ 3
50	Edwards	100	87½	— 22½
20	Bates	100	271½	+ 3½
13	Arlington	100	108⅝	— 5⅜
10	Continental	100	80	— 2
1	Nashua	500	1,000	+144½

110 Total.

	1919.	1918.
Domestic	1,505,017	3,100,747
Foreign	1,171,791	8,726,095
Totals	2,676,808	11,826,842

New Bedford Mill Stocks

NEW BEDFORD, Jan. 9.—Whatever the reason may have been which was responsible for the heavy sales reported in the latter part of the year, there is no doubt about the genuineness of the inquiries for mill shares during the past few days, and several well known stocks have taken a decided boost in consequence of the heavy demand. Acushnet paves the way with an increase of seven and one-half points in the past week, with Dartmouth common also marking an advance of five points in the same period. Manomet continues to be one of the most popular stocks in the local market, and by increased stages has gradually advanced from a selling price of 135 a few weeks ago until it sold at 138 and 139½, respectively, during the past week. City and Bristol have both strengthened one point in the bid price, while two points higher is demanded in the asking price.

Comparative War Values

The course of share values of leading New England mill stocks since 1914, and including values in July, 1914, or just before the World War and in December, 1918, just after its close, may be found of interest and is presented in tabular form, as follows:

	1918.			1917		1916.		1915.		1914.		
	Dec. 31.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	July.
American Woolen, Pfd	95	99½	89	100¾	87¼	99⅝	92½	98	77½	82¼	73⅝	74½
Amoskeag, Com.	82	90	60½	75	60	77½	66	67	59⅛	65	58½	62
Androscoggin	190	190	178	195¾	190	301	180	160	135¾	137	135¼	137
Arlington	114	126½	106⅞	120	106⅞	120⅛	100	100	75	80	75¼	80
Bates	268	275	251	360	258½	293¾	240	241¼	213¼	230¾	213¼	213¼
Bigelow-Hartford, Pfd.	83¾	89½	80½	85	85	112	106½	107¾	103	....	....	....
Dwight	1150	1175	1105	1105	1105	1150	1000	1035	1000	1035	1020	1021¼
Great Falls	179¾	195½	177	215	194	201⅝	187¾	192	170½	180	168	170½
Hamilton Mfg.	110	115	90	99	98	87½	73	77½	60¾	83	75	75
Lancaster	94	95⅝	77	82¼	75¼	90½	79	92	60	92	75	75
Lyman	136¼	140	131½	133	133	126½	122½	125⅝	112	120¾	112	120
Mass. Cotton	135¼	142	126	140¼	122	140	123	133½	114	116	115½	116
Merrimack, Com.	70⅝	75	60⅝	63½	58	54½	33	*35	22	*30½	24½	24⅝
Nashua	855⅝	855½	798	804	798	821	750	711¼	*650	672½	630	672½
Naumkeag	171½	195½	154	200⅛	190	210½	185	222¼	178¼	*198¼	172	172
Pacific	155	155	129	181	127	181⅜	126	125	102	112½	106	110
Pepperell	200	206¼	190	204	188	194½	120⅝	*346½	305	*305⅜	290	305
Tremont & Suffolk	157½	158	137½	142½	139	140½	112	112	97	102	100	100⅜
York	133½	133½	110	126	113	115½	95¼	95¼	85	85¼	85	85

* Old stock.

Fall River Year Unprecedented

Record Advances in Wages and Dividends with Labor Rampant

(From Our Regular Correspondent)

FALL RIVER, MASS., Jan. 5.

TWELVE months of wonderful earnings were experienced by the manufacturers of this city. The year was the greatest in the long record of cotton manufacture—in profits, worry, sales, strikes, wage increases and persistent and annoying agitation; yet, in spite of the combination, serious trouble was escaped and nobody was so impressed with the prolificness of dividends as to seek subscriptions to stock in a new corporation. In the latter particular, 1918 was peculiar. From the indications the peculiarity will be as applicable to the present twelvemonth.

STRIKE FEVER SPORADIC

Industrially, the old year had no parallel, just as it was without precedent for results financially. Spring fever developed into strike fever, so widespread that no agent was able to go to bed any night in the confidence that either the next day or the morning following his machinery would not be tied up in one or all departments. Union rules were effective as a deterrent of idleness unauthorized on mule-spinners and loom-fixers only. Weavers were chronic grumblers, and quit work at nearly a dozen plants. Doffers and ring-spinners were susceptible to the germ to the extent that they sought in instances the right to prescribe who should be their overseers and second-hands.

The firemen seized expediency by the forelock. They had been agitating reforms of one kind or another for months. When they found the manufacturers buried in orders, advantage was taken of the opportunity. The attack was successful in the main, and conditions were altered at the behest of the union, but not the prescription that only the wearer of a union button should shovel coal.

The American Printing Co. did what officials of other printeries thought to be impossible without a long process of education and an indefinite period of idleness—it beat its fifteen engravers. In addition to an increase of 5 per cent. in wages, the men asked for a week of 50 hours, a reduction of two hours and a half. Their pay was bettered, but their hours were not. They struck. Although the company had a severe fight to cope with, made so by the fewness of capable engravers, it met the situation. In a few months the strikers sought their old places, only to find them filled.

The great feature of the old year in its labor aspects was the unsuccessful effort of the union to secure an advance of 15 per cent., though the movement really began in December, 1917, reaching its culmination in 1918. Wage advances began with a concession of 5 per cent. on Jan. 24, 1916, and continued with periodic regularity until 53 per cent. had been granted to the operatives. It was their insistence on 15 per cent. for the first half of 1918 which precipitated a threatening controversy. That ended in the acceptance of the manufacturers' suggestion that the Federal Department of Labor investigate the situation and decide between 15 per cent. and 12½ per cent. His decision was in favor of 12½ per cent., and the workers acquiesced. With the making of another raise at the end of the six months assured, the mill men thought their troubles over. However, they were asked to reimburse the help for shutdowns caused by the coal shortage. That was the straw which ruptured their patience, and they struck, declaring their innocence of the cause of the suspension and stating that they shared in the suffering. The demand was not pressed. Another request for higher wages, presented in November, was perfunctory in character, for there was no demur when the manufacturers turned it down flatly.

FINANCIAL REVIEW

Twelve months ago eight textile corporations owed $750,787—the Ancona Co., the Arkwright Mills, the Barnard Mfg. Co., the Foster Spinning Co., the Hargraves Mills, the Seaconnet Mills, the Troy Collar and Woolen Mfg. and the Wampanoag Mills. The year closed with the Ancona replacing an encumbrance of $137,000, with a surplus of $400, the first in the history of the corporation; the Wampanoag with $118,475 to the good, the Hargraves $144,978, the Arkwright $75,039, the Seaconnet $128,109 by a gain of $215,332, and the Troy $22,486. The Barnard is the only member of the eight with obligations undischarged when the fiscal year closed. The total of $97,423 remains after a reduction of $149,983. The aggregate of increased assets is $6,387,500. Only one corporation, the Luther, decreased its surplus, taking away $16,494. Two corporations have a million of reserve, as indicated by the summary below, and 10 have half a million and over.

THE PERSONAL PAGE

Charles L. Mitchell, president of the Waterford (N. Y.) Knitting Co., was last week elected president of the Waterford Club, one of the oldest and most popular social organizations in northern New York. Mr. Mitchell has been a prominent member of the club for many years and has served on its principal committees.

Stephen Sanford, of S. Sanford & Sons, Inc., carpets and rugs, Amsterdam, N. Y., distributed last week large bonuses to his employes as a New Year's gift, those employed continuously one year and less than three years getting five per cent of the amount earned during the last year and those employed continuously three years and less than five years received seven per cent, while the operatives employed more than five years received ten per cent of their earnings for the same period.

Walter H. Langshaw, president and agent of the Dartmouth Manufacturing Co., New Bedford, Mass, was the principal speaker at a get-together meeting of the heads of the various departments held at the Parker House in that city, last Saturday evening. Mr. Langshaw took for his theme, "Understanding versus Bolshevism," and declared "that the time had passed when the desires of the people of any avenue of life could be ignored, that if the desires were not reasonable or fair they should be made clear by discussion and exchange of views on the subject and that this mutual understanding is the only way in which the wave of Bolshevism, appearing as a cloud over the world, can be met and overcome." Mr. Langshaw based his remarks on the result of conclusions he had arrived at following a period of fifty years spent in the cotton industry.

George W. Fraker, President and General Manager of the Carolina Cotton and Woolen Mills Co., Spray, N. C., has tendered his resignation to the parent organization, Marshall Field & Co., Chicago, to become one of the Vice-Presidents of the National City Bank. Before leaving Spray he was given a farewell reception by the heads of departments and employes of the mills. Mr. Fraker has been connected with this enterprise for twelve years and has witnessed a remarkable growth in that time.

P. T. Armstrong, of the Brainerd & Armstrong Co., New London, Conn., has been elected President of the New London Manufacturers' Association, which was recently organized. Fred W. Mercer, Treasurer and General Manager of the New England Carpet Lining Co., New London, is Vice-President of the new association, and Ralph H. Melcer, Treasurer of the Palmer Bros. Co., New London, is a member of the Executive Committee.

Sergt. James A. Connelly, Jr., son of James A. Connelly, head of the firm of James Connelly & Sons, Philadelphia, has returned to this country after a glorious record in the famous Lafayette Escadrille, of the French Army. He is now home on an indefinite sick leave, as he is still in the French service. Sergt. Connelly took part in sixty-five air battles and skirmishes. He is officially credited with seven German planes, and seven more also were brought down by him back of the German lines, and hence do not figure in the official record. He wears the Croix de Guerre, with seven palms, and a gold star and the Medaille Militaire as a token of his achievements. Sergt. Connelly went to France in May, 1917, and enlisted in the French Army, and was for one year in the thick of the fighting, taking an active part in the battles of Chateau-Thierry, Argonne Forest, Champagne, and the later active campaign near Metz.

George McFadden, of the firm of George H. McFadden & Bro., cotton merchants, Philadelphia, has received special commendation from General Pershing for the work accomplished by the War Trade Board. Several months ago, Mr. McFadden was sent to France as a representative of the War Trade Board. Immediately after the signing of the armistice, he ended his work there and returned to this country.

R. B. P. Forrest, who had been stationed at League Island, Philadelphia, attached to the paymaster's department of the Navy, preparing to take examinations for the post of assistant paymaster, was released from the service because pressure of personal business interests as a member of Forrest Bros., cotton yarns, Philadelphia, necessitated this step. He is now recovering from an attack of influenza.

J. D. Smith has resigned as Southern agent for the Normalair Co., Winston-Salem, N. C., to accept a position with the Parks-Cramer Co., of Charlotte, N. C., manufacturers of the Parks and Cramer humidifying systems.

Major Frank L. Walton, of Quartermasters Corps, Zone Inspection Division, Atlanta, Ga., on Dec. 31, 1918, issued orders promoting J. R. Killian to District Inspector of Georgia and Alabama, relieving Lieut. Clinton J. Morgan and Walter W. Gayle. Mr. Killian was superintendent of the Cannon Manufacturing Co., Concord, N. C., for a number of years, as well as a number of other mills in the South.

Word has just been received from England that Jasper M. Whitehead, third son of John H. Whitehead, senior partner of Taylor, Wordsworth & Co., Ltd., Leeds, England, manufacturers of combing machinery, was killed in action in France on Sept. 19. He was a member of the Royal Fusileers, and was 19 years old. The oldest son, John, was killed in the early part of December, 1917. A second son, Donald, is in Buenos Aires engaged in the wool business.

Lieutenant Warren T. Kent, Aviation Corps, son of the late Henry T. Kent, of the Kent Manufacturing Co., Clifton Heights, Pa., who was originally reported as missing, is now reported as having been killed while flying on patrol duty over the German lines, Sept. 7. This news was received from his brother, Capt. Henry T. Kent, Jr., of the U. S. Infantry. Lieut. Kent had originally enlisted in the American Ambulance Corps with a number of friends from Cornell University, sailing April, 1917. On reaching France, however, he volunteered to drive supply motor trucks. He claimed the honor of being with the first recognized unit of Americans to enter the war. In October, 1917, he resigned to enlist in the Aviation Corps, and after five months training, was commissioned lieutenant and assigned to Second Pursuit Group, 49th Aero Squadron. He was twenty-five years of age.

Wellington Sears & Co., dry goods commission merchants, Boston, announce that Harry L. Bailey has severed his connection with the War Department and has been readmitted to a partnership interest in the firm. Mr. Bailey occupied an important position in the cotton goods section of the Clothing and Equipment Division of the Quartermaster's Department, ever since this country entered the war, first confining his attention to the purchasing of cotton duck under Albert L. Scott, and when the latter resigned he assumed charge of the cotton goods section.

James Ashby, formerly instructor in chemistry at the Lehigh University, South Bethlehem, Pa., is now connected at the research laboratory at the Buffalo, N. Y., works of the National Aniline & Chemical Co.

In commenting upon the outlook for the domestic dye industry following the cessation of hostilities, Eugene Heller, of Heller & Merz, Newark, N. J., manufacturers of dyestuffs, etc., says that there is a bright future for the industry in this country; that it is one of the big industrial growths of the war, and is in a position to be maintained permanently as a great asset to the country's prosperity.

E. H. Ellis, formerly New York representative of the Erwin Yarn Agency, Inc., and who served throught the war as an officer on a U. S. Army transport, has resigned from the service, and taken the position of general sales agent for the Nitram Manufacturing Co., of East Orange, N. J.

George L. Graham, traffic manager for the American Woolen Co., Boston, has been appointed chairman of the transportation committee of the Boston Chamber of Commerce, the committee starting its activities Jan. 1st. This work will not interfere with his duties in the American Woolen Co.

V. M. Manning, formerly purchasing agent for the Victor-Monahagan Mills, but later engaged in the buying and selling of cotton mill stocks and bonds, with an office at Greenville, S. C., and who enlisted in the U. S. Army on the entrance of this country into the war and was commissioned as Lieutenant, has returned to Greenville and reopened his stock and bond business.

J. B. Shatzer has succeeded C. E. McKee as sales manager for the Cement Products Co., Wilmington, N. C. This company has had quite an extensive business throughout the textile industry in their sanitary sewerage system.

Charles Morton has been appointed General Superintendent of the Wamsutta Mills, New Bedford, Mass., and will have charge of the manufacturing. He succeeds Nelson A. Batchelder, who, as previously noted in the JOURNAL, has become General Manager of the mills of B. B. & R. Knight, Inc. Mr. Morton has been promoted from the position of Superintendent of Mills 6 and 7, of the Wamsutta plant. He has had much to do with the management of machinery and other changes along reconstruction lines at the Wamsutta, in which he has rendered very efficient service.

E. C. Childs, agent of the Boston Duck Co., Bondsville, Mass., has appointed B. C. Shaw superintendent, succeeding Vernon C. Faunce, who recently resigned to become agent of the Warren Cotton Mills, West Warren, Mass. Mr. Shaw had been assistant superintendent at Bondsville for several years.

Lieut. C. K. Dillingham, of the 318th U. S. Infantry, who was formerly Superintendent of the plant of the H. W. Johns-Manville Co., at Manville, N. J., and who is a prominent Phi Psi member, has been awarded the Distinguished Service Cross. The citation accompanying the award is as follows: "For extraordinary heroism in action near Nantillois, France, Oct. 6, 1918. Lieut. Dillingham, on duty as battalion intelligence officer, twice volunteered and led a patrol through woods known to be occupied by hostile machine guns. Working his way through artillery and machine-gun fire, he succeeded in ascertaining the position of units on the right and left of his own. Throughout the action around Nantillois and the Bois des Ogons this officer was a constant inspiration to his men by his devotion to duty and disregard of personal safety."

Arthur C. Roberts, assistant superintendent of the Amoskeag Manufacturing Co., Manchester, N. H., has been advanced to superintendent of the mills, succeeding John H. Marshall, deceased.

Herbert E. Richardson, overseer at the Amoskeag Manufacturing Co., Manchester, N. H., has been promoted to assistant superintendent, succeeding A. O. Roberts.

Louis F. Phelan has resigned as Assistant Superintendent of the Border City Manufacturing Co., Fall River, Mass. He was an overseer in the same plant for several years before becoming Assistant Superintendent.

Leonard Kleeb, Jr., who for five years was mechanical superintendent of the Manomet Mills, New Bedford, Mass., and who is now with the Wampanoag Mills, Fall River, Mass., was agreeably surprised by his former associates, who presented him with a pair of gold cuff links set with diamonds, and a scarf pin with a diamond and platinum setting.

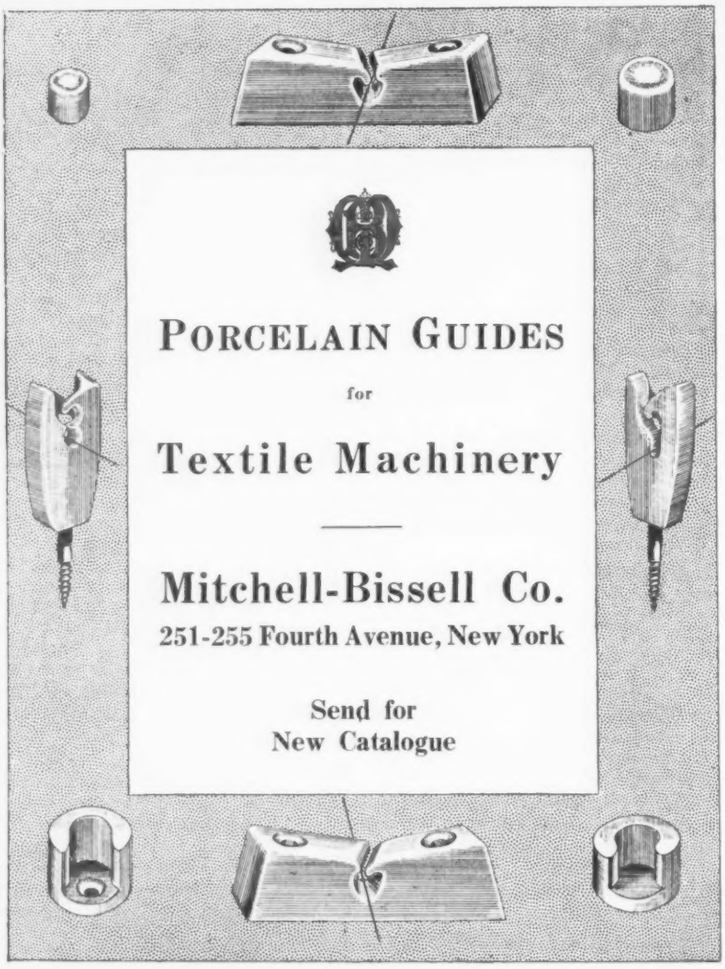
V. M. Johnson has resigned as superintendent of the Poinsett Mills, Greenville, S. C., and is succeeded by A. T. Brown, formerly superintendent of the Glenn-Lowry Mills, Whitmire, S. C.

Howard E. Thunge has resigned as manager of the Jefferson Mills of the J. E. Fricke Co., Chester, Pa.

John F. Scott, office manager and paymaster at the Fuld & Hatch Knitting Co. plant, Albany, N. Y. was last week appointed a member of the Board of Education at Cohoes, for a term of five years.

Private Fred Berlin, who has been in charge of the war work at the Swarthmore Textile Company, Valatie, N. Y., was last week ordered to Camp Upton where he was mustered out of the service. Mr. Berlin was inducted last June for special training and sent to Rochester but later at the request of the officials of the company he was allowed by the Government to take up his position with the Swarthmore Textile Company which he held before being drafted.

An effort is being made to locate relatives of Charles H. Slater, a retired textile manufacturer, 78 years of age, who was found dead in his bed in his home, 2324 East Hazzard Street, Philadelphia, where he lived alone.



PORCELAIN GUIDES

for

Textile Machinery

Mitchell-Bissell Co.

251-255 Fourth Avenue, New York

Send for
New Catalogue

MASON MACHINE WORKS

TAUNTON, MASS.

REVOLVING FLAT CARDS.
DRAWING FRAMES.
SPINNING FRAMES.
COTTON LOOMS.
SILK LOOMS.
DOBBIES.
TIRE DUCK LOOMS.
MEDIUM AND HEAVY DUCK LOOMS.

SOUTHERN OFFICE: GREENVILLE, S. C.

Saco-Lowell Shops

TEXTILE MACHINERY

Cotton Mill Equipment including pickers; cards; drawing; evener drawing roving, spinning, twisters; slashers; spoolers; reels; winders; warpers.

Worsted Machinery including revolving creels; gill boxes; drawing frames; reducing and roving frames; cap, ring and flyer spinning and twisting frames; jack spoolers.

Spun Silk Machinery including spreader; filling engine; drawing frame; fly frames; spinning; gassing spooler; trap spooler; twister.

Complete Waste Reclaiming Machinery.

Executive Offices:

77 Franklin Street, Boston, Mass.

Shops:

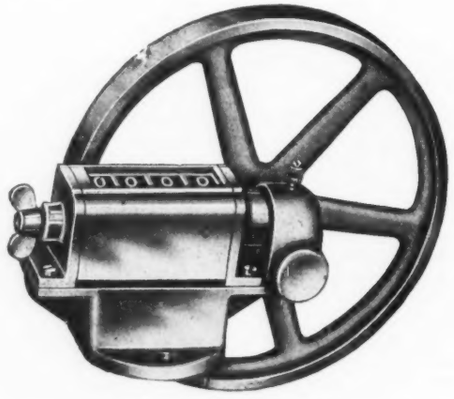
Biddeford, Me. Newton Upper Falls, Mass. Lowell, Mass.

Southern Agent: Rogers W. Davis, Charlotte, N. C.

Keep down costs to meet competition by giving the operative a definite figure to work for, and a definite production-standard to answer for. *Equip machines with*

Veeder
COUNTERS

The Set-Back Yardage Counter below measures the yardage of output of finishing and other machinery, where makeshift devices or expensive measuring instruments have been used. The straight face friction wheel ½ yard in circumference is geared so it measures in units of one yard. Runs on ball bearings, with practically no resistance: will not slip on the finest fabrics. Reads in plain figures—there's no disputing the record.



The Veeder Booklet shows Loom Pick Counters, Lineal Measuring Counters, Hank Counters and others—a specialized counter for nearly every machine. Will you write for a copy?

The Veeder Mfg. Co., 36 Sargeant St. Hartford, Conn.

GARLAND

RAWHIDE LOOM PICKERS

Are carried in stock in all standard styles and are ready to go on the loom without fitting. They are made of the best buffalo hide to be obtained and are always uniform in quality.

TRADE MARK

GARLAND MFG. CO. SACO, MAINE

MILL NEWS

Cotton

YUMA, ARIZ. George Leevey is interested in information as to spinning and weaving machinery for a cotton mill, as he is considering starting a plant on a small scale. Yuma is in a district where there is an unlimited supply of long staple cotton, an abundance of electric power at a low rate, and an excellent market for the finished product.

WILLIMANTIC, CONN. The Quidnick-Windham Manufacturing Co., chambrays, sheetings, sateens, shirtings and yarns, has, it is reported, started the erection of a new cotton shed in the yard of its upper mill off Bridgeport street.

ELGIN, ILL. The Western Thread Co., Bluff and Grace streets, is considering plans for the erection of a new one-story factory building, to cost about $25,000. It is understood that the project will proceed early in the coming March. J. C. Mutter is superintendent.

LOWELL, MASS. Appleton Co. will build a steel bridge across Revere street to connect two of its mills. The bridge will make connections between the second stories of the buildings.

MANCHESTER, N. H. The concrete pump house of the Stark Mills has been completed and equipment installed and the machinery is now in operation there. The structure cost $6,600, exclusive of the equipment.

* SUNCOOK, N. H. The new two-story 40 x 40-foot building, which is being constructed for the Suncook Mills, at a cost of $11,000, is to be used as a modern waste house, the company advises.

GASTONIA, N. C. The Ozark Mills have filed notice of an increase in their capital from $200,000 to $750,000, to provide for proposed expansion. The company specializes in the production of yarns.

CLEARWATER, S. C. The Seminole Mills have recently equipped all their picker room machinery with the Brown St. Onge Grid Bars. They have also added one opener to those already in use. The mill has been painted inside and all the mill village has had a new coat of paint.

COLUMBUS, S. C. The Columbia Mills Co., of the Mount Vernon Woodberry Mills, has built three new sections to its warehouse to improve its shipping facilities. The mill has also put in a complete system of water and sewerage facilities, both for the residences and the mill.

WELLAND, ONT., CANADA. The Empire Cotton Mills Co., Ltd., Queen street East, is now constructing a new office building at a cost of about $12,000.

SPRINGFIELD, MASS. The Hutchins Narrow Fabric Co. has filed a petition in bankruptcy and a meeting of creditors will held on Jan. 10 at the Springfield Court House. Charles W. Bosworth has been made referee. The assets are placed at $6,361.57.

WEST HOBOKEN, N. J. The Gouled Embroidery Works, of Union Hill, is now in liquidation. It is understood that it is to be succeeded by the Independent Manufacturing & Importing Co., 340 Hudson avenue, West Hoboken, N. J., which manufactures embroideries and ladies' neckwear, and of which Peter Gouled is president, superintendent and buyer.

CHELSEA, MASS. Chadbourne & Moore have incorporated to manufacture webbing, cloth, cotton, yarns, clothing, elastic, rubber and all goods of which rubber is a component part. The capital stock is $400,000, composed of 2,000 6 per cent. preferred shares and 2,000 common shares, all issued. Cash 189 preferred shares; real estate, located at Chelsea, 665 preferred shares; machinery, 393 shares preferred and 2,000 common; merchandise, 693 preferred and Liberty Bonds, 60 preferred shares. The company is the incorporation of the mill of the same name, of which Walter B. Moore is president and Joseph H. Chadbourne, treasurer.

FALL RIVER, MASS. Small Brothers Manufacturing Co. has been incorporated, with a capital stock of $200,000, to manufacture cotton and textiles. The incorporators are: Elisha H. Small, Reuben C. Small and Norman C. Small, all of Fall River, Mass., and Reuben T. Small, of Lehighton, Pa.

GREENVILLE, S. C. The Mills Mill has been incorporated, with a capital stock of $529,400, to take over the Mills Manufacturing Co., fine twills and sheetings. The incorporators of the new corporation are: Allen J. Graham, S. A. Burts, and C. F. Haynesworth, all of Greenville. The present company has a capital of $254,700. Mr. Graham is president and treasurer and Mr. Burts is secretary. The plant has 31,000 ring spindles and 816 looms.

BOSTON, MASS. New officers have been elected for the Boston Belting Co. and the Roxbury Carpet Co., and in the future the business of these concerns will be actively pressed and will be totally divorced from any interest of Willett, Sears & Co., or any part of their various enterprises, it is reported. William A. Gaston has been elected president of the companies, succeeding George F. Willett and Henry B. Sprague succeeds Edmund Sears as treasurer. The directors are: Frederick E. Snow, Frank W. Knowlton, John C. Rice, Otis B. Prescott and William A. Gaston. New offices have been leased in the Textile Building, 99 Chauncy street.

Wool

CENTRAL VILLAGE, CONN. Since the taking over of the Plainfield Woolen Co. and the Central Yarn Co. by Farnsworth-Pinney Co., offices at 230 Fifth avenue, New York, the number of spindles has been increased to 4,600, or more than double the former spindleage.

NORTH ANDOVER, MASS. The two-story addition now being constructed for the Brightwood Manufacturing Co., fine worsteds and novelty dress goods, is now nearly finished. The building is 83 x 100 ft., and the upper story is to be used for weaving, with the lower story devoted to winding, etc. There will be no new equipment. The building is simply to give the company more room in the receiving and winding departments.

* *Indicates previous mention of project.*

Commercial Service

Through our Commercial Service Department, in connection with our Buenos Aires Branch and numerous correspondents throughout the World, we are prepared to supply to merchants and manufacturers reliable information regarding trade conditions in foreign countries; and to aid them in obtaining satisfactory foreign representatives.

You are invited to make use of our facilities.

The First National Bank of Boston

Capital, Surplus, and Profits, $27,000,000
Resources . . Over $250,000,000

Branch at Buenos Aires, Argentina

Classified Directory of MILL ENGINEERS and ARCHITECTS

THE ARNOLD COMPANY

ENGINEERS—CONSTRUCTORS ELECTRICAL—CIVIL—MECHANICAL

106 SOUTH LA SALLE STREET CHICAGO

DESIGN AND CONSTRUCTION OF COMPLETE INDUSTRIAL AND POWER PRODUCTION PROPERTIES

WALDO S. COULTER

Consulting, Designing and Supervising Engineer

114 LIBERTY ST., NEW YORK

Specializing in Trades Waste Treatment

Treatment of waste liquids from manufacturing processes to prevent nuisance in the stream or on the property receiving them. Recovery of valuable constituents from waste liquors.

Day & Zimmermann

INCORPORATED

Engineers—Industrial Architects—Managers

Layout, Design and Construction of Industrial Plants

611 Chestnut Street PHILADELPHIA, PA.

W. E. S. DYER

MILL ENGINEER and ARCHITECT

Design, Specifications and Superintendence for Textile Mills, Industrial Plants and Kindred Structures.

Reorganizations, Valuations and Reports on Mill properties. Power Plants of every description and directions for their economy of operation.

Land Title Building PHILADELPHIA, PA.

Warren B. Lewis

CONSULTING ENGINEER

Textile Plants *Steam and Electric Power Plants*

For twenty years this organization has been saving coal for its clients by systematic supervision of the operation of boiler plants and the uses of steam throughout industrial establishments. In most cases, the service has cost less than the annual saving in the fuel bill.

It is still equipped to render this service with the effectiveness resulting from knowledge and experience.

PROVIDENCE, RHODE ISLAND

ARTHUR D. LITTLE, Incorporated

CHEMISTS AND ENGINEERS

CAMBRIDGE, MASS

We have a very efficient textile department that is at the service of American manufacturers to solve problems in dyeing, finishing, bleaching, etc., or the development of novelties in fabrics. It costs nothing to find out what work on these problems costs.

E. S. DRAPER

CHARLOTTE, NORTH CAROLINA

LANDSCAPE ARCHITECT AND CITY PLANNER

MILL VILLAGE DEVELOPMENT

MILL NEWS—Continued

PLYMOUTH, MASS. The Turner Construction Co., 244 Madison avenue, New York, has received the general contract from the American Woolen Co. for the erection of a 4-story, reinforced concrete building, 50 x 102 feet, as an addition to the Puritan Mills. W. B. Knowlton is the architect. Work will go ahead at once.

WRENTHAM, MASS. L. P. Beaumont, fine wool shoddies, has installed a carbonizing plant at his mill during the past year and discontinued garnetting. He has four sets of cards and 2 pickers.

*HINSDALE, N. H. R. C. Averill, new owner and manager of the Hinsdale Woolen Mill, advises that no changes are to be made in the product or equipment of the plant following his acquisition of the controlling interest, and R. A. Weeks is to continue as superintendent. Cashmerettes are the product, as heretofore, and there are seven sets of cards and sixty broad looms.

WOONSOCKET, R. I. The Montrose Worsted Co. has purchased from Leandre Maillous land and buildings on East School street.

*ALMONTE, ONT., CANADA. The flannel mill of William Thoburn is to be rebuilt, it has finally been decided. This mill was destroyed by fire several months ago and reconstruction delayed on account of current conditions. Now, however, orders have been placed for the necessary machinery and it is hoped to have the plant ready to resume operations in a short time.

BLAKENEY, ONT., CANADA. The Blakeney Woolen Co., Ltd., has purchased the Ker-Ben plant in Almonte, Ont., and is moving the equipment to its local mill, and it is hoped that the buildings may be expanded to care for this increase.

ST. JACOBS, ONT., CANADA. The Canadian Felting Co. will erect a brick addition to its plant at a cost of about $5,000 and has awarded the general contract.

WORCESTER, MASS. The Daniel Green Felt Shoe Co. has been sold to J. A. Manning, head of the Outing Shoe Co. The sale includes machinery and equipment in the plant at 360 to 370 Park avenue, Worcester. The Daniel Green Felt Shoe Co. has removed to Dolgeville, N. Y., where its branch plants are to be consolidated. They retain ownership of the Worcester real estate.

PROVIDENCE, R. I. The Colwell Worsted Mills have increased their capital stock from $100,000 to $250,000.

*PORTLAND, ORE. The Oregon Worsted Co. has now been fully organized and is operating the old plant of the Multnomah Mohair Mills. When plans for starting up the mill were first made, it was planned to name the new company the Columbia Woolen Co., and it is under that name that former reports have been published. The officers of the new concern, which is capitalized at $300,000, are: E. B. McNaughton, president; J. A. Zehntbauer, of the Portland Knitting Co., treasurer; and Roy T. Bishop, of Pendleton, Ore., in charge of the buying. The plant spins 26s two-ply to 5s four-ply yarns and weaves worsted fabrics. The equipment is practically that of the old Multnomah mills, namely 2 worsted combs, 2 worsted cards, 2,200 spindles and 80 looms. Electric power is used and there is a dye house operated. The product is sold direct. The plant is located at Twenty-seventh and Umatilla streets, and about 75 operatives are employed.

** Indicates previous mention of project.*

Knit

UTICA, N. Y. Permit has been granted the Utica Knitting Co., Mill No 2, to erect a brick addition to the office at 607 Schuyler street, at an estimated cost of $1,200.

*PIQUA, O. The Piqua Hosiery Co., high-grade union suits for men, confirms the report that the Bowling Green plant of the company has been discontinued. When this plant was purchased from the Monarch Underwear Co., the company states, it was with the idea of acquiring this machinery and utilizing this plant while the company filled its Government contracts. The machinery has now all been moved to Piqua and installed in the main plant here, which is a modern and up-to-date plant in every respect. In order to accommodate the new equipment, the knitting and winding machinery is now being moved into the 5-story brick building which was purchased on the same block and south of the present plant several months ago. The new building is being utilized entirely as a knitting and winding plant. The cloth is then taken over into the modern concrete mill which is now devoted entirely to use as a finishing plant. The three buildings are now connected by bridge and enable the company to practically double the former union suit production. The entire block for the future will be devoted to the manufacture of men's and boys' high-grade union suits and the making of some high-grade shirts and drawers.

PHILADELPHIA, PA. The Roxford Knitting Co., North West Randolph and Jefferson streets, has awarded the contract for the installation of a new boiler and the construction of the necessary foundation. The work will cost about $4,000, and Albert Doak has the contract.

BRISTOL, TENN. The Bristol Hosiery Co. is considering plans for extensive improvements and alterations in its plant and the installation of additional equipment for increased operations. It is understood that the company is planning to increase the present capacity by approximately 50 per cent. J. H. Wood is manager.

SUFFOLK, VA. The Virginia Glove & Textile Manufacturing Co. is considering plans for the installation of the necessary equipment for the weaving of jute cloth or burlap. C. E. Reick, Waverly, Va., is president.

*CHERRYVILLE, N. C. The Hoyle Knitting Mills are about to put their new plant in operation. The plant is owned by J. C. Hoyle, of Lincolton, and has been in process of organization since last August. There are twenty knitting machines for producing "Hoyle's Honest Hosiery." Plans have been published previously.

MILL NEWS—Continued

KINCARDINE, ONT., CANADA. The Circle-Bar Knitting Co. has recently enlarged its boiler house and has installed a new boiler therein. A large brick smokestack has been erected and a new stock room and storehouse is to be built in the near future.

ST. JEROME, QUE., CANADA. The extension made by the Regent Spinners, Ltd., consists of a brick building 57 x 60 feet, an addition to the carding and spinning department. The increase in machinery is three sets of cards and three mules, bringing the total up to seven sets of cards and 3,220 spindles. There is also an equipment of machinery for knitting sweaters. The plant is a branch of the Regent Knitting Mills, of Montreal, Que.

*LEMOYNE, PA. On Jan. 15 the Okeh Hosiery Mill will be ready to start manufacturing operations. Construction work on their new plant was started last June, and the mill is now completed and machinery being set up. The building is 40 x 100 feet, and is to contain 6 loopers, 6 ribbers and 2 welters, with 32 knitting machines, for producing infants' ribbed and flat hosiery. George W. Malick is president and Samuel F. Peters, treasurer of the company. About 30 operatives are to be employed to start. Cotton yarns, 14s, 16s and 18s are used, and Mr. Malick has charge of the buying of all supplies. He is interested in information regarding ball bearings, boxes and box shooks, chain drive, clutches, dust collectors, hosiery box labels, hosiery stamps, knitting needles, labeling machines, oiling systems and stencils.

*LA FOLLETTE, TENN. The new branch plant of the Magnet Knitting Co., Clinton, Tenn., is about to be put in operation. C. S. Kincain is to be general manager in charge. Plans have previously been reported.

BALTIMORE, MD. It is reported that Oppenheim, Oberndorf & Co., New York, owners of the Vindex Shirt Co., of this city, have purchased a mill for the manufacture of men's cotton ribbed union suits and propose getting into operation some time in January.

Silk

*NANTICOKE, PA. It is understood that the Duplan Silk Co. may in the near future carry out its plans for the large silk throwing plant here, deferred for the past year on account of war conditions. About 900 operatives will be employed at the new mill, which is to be one of the largest silk-throwing plants in the country. The building will cover about 850 square feet, as originally planned, and will be operated as a branch of the main mill at Hazelton.

MEMPHIS, TENN. Mark Fenton, commissioner of the industrial division of the local Chamber of Commerce, has announced that in all probability Memphis will soon secure a new silk mill. He has been in consultation with men who are seeking a suitable site and is sanguine of persuading them to locate here.

PATERSON, N. J. The General Silk Mills, Inc., of 159 Ward street, have been incorporated, with a capital stock of $25,000, divided into 250 shares at $100 each. The agent in charge is Hyman Sussman, and Regina Sussman, Simon Setzer and Sarah Setzer are the other incorporators.

PATERSON, N. J. The Dante Silk Co., Inc., has been incorporated to engage in manufacturing of silk in the De Grade Mill, East Seventh street. Papers filed give the capital stock as $50,000, and Anthony Andriate as agent. The capital stock is divided into 500 shares of par value $100 each. The incorporators are: Andrea Mazzarella, Nichola Vanore, Thomas Satastano, Giacomo Di Giacomo and Charles Clammors.

PATERSON, N. J. The Barber Silk Co. has been incorporated, with a capital stock of $25,000, to manufacture silk and other textile fabrics.

TRENTON, N. J. The Federal Textile Co. has been incorporated, to manufacture silk and other textile fabrics, the capital stock being $150,000.

NEW YORK. The American Knitting Mills, Inc., has been incorporated, with a capital stock of $4,000, to manufacture sweaters and other knit goods. The incorporators are: William Kopolsky, Daniel Amer, and Joseph Lipshitz.

PATERSON, N. J. It is reported that the plant of Buyer Bros. & Stein has been sold to Fred Arnold, formerly connected with the Cedar Cliff Silk Co., and that it will be operated in future as the Arnold Silk Co. The plant consists of 14 plain and 10 box looms, 192 spindles, and produces dress, tie and lining silks. There are about 20 operatives employed.

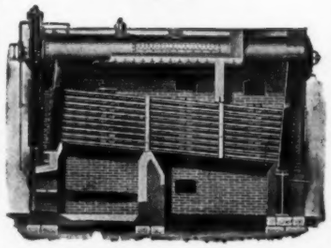
WEST HOBOKEN, N. J. It is reported that H. R. Mallinson & Co., Inc., of New York, have purchased two 4-story brick silk mills, each erected on a plot of 100 x 100 feet, at the northeast corner and southeast corners of Spring and John streets.

Miscellaneous

VICKSBURG, MISS. Plans are now being completed for a $350,000 company to build a new cotton compress and warehouse here. The company is to be incorporated under the laws of the State and will build a modern plant with sufficient capacity to handle the entire yield of cotton in the surrounding territory. Committees have been appointed to secure a site, and S. C. Ragan made temporary chairman. George B. Hackett, of the Citizens National Bank, has been made secretary.

*PHILADELPHIA, PA. The S. & M. Dyeworks, Inc., advise that on Jan. 1 they took over the old Quaker Dye & Bleach Works. They have as their new officers Eugene W. Seng, president, superintendent and buyer, and Lindsay H. Mason, treasurer. The plant is equipped to dye and bleach worsted, woolen, merino, combination and cotton yarns, and has a capacity of 15,000 lb. per day. Steam power is used by the plant, which employs 30 operatives. The old officers of the company were Joseph Graham, president, and Eugene W. Seng, vice-president and treasurer, and formerly the capacity was only 10,000 lb. per day. The plant is located at Richmond and Schiller street.

*Indicates previous mention of project.



HORIZONTAL
WATER TUBE
BOILER

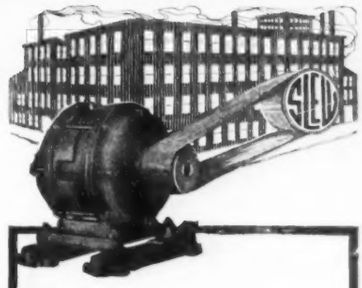
Pressures 160 to 300 Lbs.
Units 100 to 1,000 H. P.

All steel construction. Drop forged, everlasting H H Plates. Baffling, vertical, horizontal or combination. Supported free of brick work. Can be arranged for superheater or any type stoker without radical change in design.

THE CASEY-HEDGES CO.
CHATTANOOGA, TENN.
CHICAGO Marquette Bldg. NEW YORK 39 Cortlandt St.

ON EVERY SIDE you will find
WHITING-ADAMS
TRADE VULCAN MARK
RUBBER CEMENTED
BRUSHES
Bristles fastened with Vulcanized Hard Rubber, and held in a vise-like grip. Shedding of bristles and failure of brushes impossible.
The most extensive and best line of Brushes in the world
Send for illustrated literature
John L. Whiting-J. J. Adams Co.
690 to 710 Harrison Ave., Boston, U. S. A.
Brush Manufacturers for Over 100 Years
Whiting-Adams Brushes awarded Gold Medal, the highest award at Panama Pacific Exposition, 1915

FIRE BRICK
AND
CLAY RETORTS
CYRUS BORGNER CO.
Successor to Cyrus Borgner
23D STREET, ABOVE RACE
PHILADELPHIA, PA., U. S. A.



St. Louis
Alternating Current Motors
Furnish Dependable Power

St. Louis Motors are made in Three-Phase, Two-Phase and Split Single Phase, Squirrel Cage Induction type. Polyphase may be had in 12 sizes, from ½ to 20 H.P., Single Phase in 10 sizes, from ⅛ to 2 H.P.

These motors are absolutely dependable; have high efficiency, low maintenance cost; ideal performance characteristics and economical price. We urge you to investigate if you are seeking the best motor value the market affords.

Send for Catalog No. 5

St. Louis Electrical Works
4060 Forest Park Boulevard
St. Louis, Mo.

Not a Rivet in it

When you want a roving can that will stand hard usage—retaining its smooth, glossy surface—then order the famous

"NO-WASTE"
Seamless Hard Fibre Roving Can

We make all kinds of fibre, boxes and cans for the mill

STANDARD FIBRE CO.
25 Miller St., Somerville, Mass.

"NEWOOL"
FINE REWORKED WOOL
WINCHESTER WOOLEN CO.
NORWICH, CONN.
"You can Win with Winchester"

THE FRANKLIN MACHINE COMPANY
Providence, Rhode Island
OPERATING
FRANKLIN FOUNDRY AND MACHINE SHOPS Telephone Union 960
HARRIS-CORLISS ENGINE PLANT Telephone Union 1857
ENGINEERS FOUNDERS MACHINISTS
Manufacturers of **HARRIS-CORLISS ENGINES,** Reboring Cylinders, Overhauling and Repairs on all kinds of Engines and Machinery—Shafting, Pulleys, Hangers, Bearings, Couplings, Etc. Silk Spinning Machinery, French Worsted Drawing Frames (Frotteurs), Iron Castings and General Mill Repairs, Ball Winding Machines, Shoe Lace Tipping Machines, Cotton Bat Heads, Yarn Dressers, Special Machinery for Textile Work.

ESTABLISHED 1851
"ECLIPSE"
BLACK MARKING INK
A reliable and absolutely *indelible* ink, will not copy, fade, spread or smirch. Can be made into any consistency
Write for samples
H. KOHNSTAMM & CO.
83-93 Park Place New York

D. GOFF & SONS
Pawtucket, R. I.

Worsted Dress Goods
Parker, Wilder & Co
Selling Agents

GARFIELD MACHINE WORKS
DESIGNERS AND BUILDERS
TEXTILE MACHINERY AND SUPPLIES
Office and Works: GARFIELD, N. J.

MILL AGENTS
MANUFACTURERS FINANCED
MODERN MERCHANDISING METHODS

BARUCH WOLFF & Co
215 FOURTH AVENUE-NEW YORK

CONVERSE, STANTON & CO.
Commission Merchants
83-85 WORTH STREET, NEW YORK
Bleached and Brown Sheetings, Lonsdale Hollands, Worsteds, Woolens and Shirting Flannels, Towels, Quilts, Damask and Blankets
BOSTON: 62 Franklin St. PHILADELPHIA: 319 Bourse

J. P. STEVENS & CO.
Commission Merchants
23 Thomas Street 25 Madison Avenue
NEW YORK

Ethan Allen
25 Madison Avenue
New York
WOOLENS WORSTEDS BROADCLOTHS

Metcalf Brothers & Company
Wanskuck Company
EVERETT BUILDING
Northeast Corner of Union Square NEW YORK

W. H. DUVAL & CO.
COMMERCIAL BANKING
FACTORS FOR MILLS AND SELLING AGENTS
225 Fourth Avenue NEW YORK

W. Stursberg, Schell & Co.
Commission Merchants and Mercantile Bankers
Finance Manufacturers, Selling Direct or Through Agents
Everett Building, 45 East Seventeenth Street NEW YORK

HOCKANUM ASSOCIATION
FINE WORSTEDS AND WOOLENS
HOCKANUM COMPANY THE NEW ENGLAND COMPANY
THE SPRINGVILLE MFG. CO. MINTERBURN MILLS COMPANY
334 FOURTH AVENUE, NEW YORK

DEERING, MILLIKEN & CO.
Dry Goods Commission Merchants
NEW YORK BOSTON CHICAGO

PERSEVERANCE WORSTED COMPANY
WOONSOCKET, R. I.
FINE FANCY WORSTEDS
SALESROOMS: 25 MADISON AVENUE, NEW YORK

WOOL MANUFACTURES

DECISIVE MOVEMENTS SHOWN IN MEN'S WEAR

Narrowness in Lines Reported on the Eve of New Competitive Season—Activity in Flannels

According to market currents, decisions are being rapidly made by men's wear factors on the eve of opening the first heavyweight season of the reconstruction period. It is learned in the trade that decisions are not uniform as to lines to be attempted. Samples for full lines are reported under way in most instances, while a few mills, unwilling to risk existing uncertainties, and specially narrow opportunities in raw materials, may be expected to attempt only conservative lines. One widely known line will not be represented in the goods market this season, it is said, the decision having been made to produce yarns only and not cloth. From this instance it is argued that further restrictions in weaving may be expected, while more complete shutdowns may not be surprising.

Factors practically are a unit in criticising the reluctant attitude of the Government, in closing out wool, to allow the establishment of a low level in keeping with the general idea of where it ought to be so as to bring snap into the goods market. Factors with lines laid out, but prices still undetermined, say buyers are ready to operate and are impatient to be in with business.

WEARY OF WAITING

The goods market passed through another week of waiting without any particular feature developing. Confident direction is still lacking, although one day is never like another, and the sum of effort applied toward the unified purpose of restoring trade would be really prodigious were it possible to compute it in figures. As it is, factors are by no means idle. There is an enormous amount of reconstruction work to do in restoring the market and, in the main, those activities which have come under observation are of good report. The spirit of optimism is prevalent throughout selling circles. Sometimes basic confidence appears a trifle obscured by the load of superficial difficulties confronting selling agents, but there is a solid stratum of belief in the surety of an ultimate tremendous need for merchandise once the obstructions present as a legacy from the abnormal conditions of last year are swept out of the way.

Prominent factors assert that most of the troubles holding business to narrow limits now may be very largely dissipated before the month is out. Large openings wait only upon a general clearing up of conditions. Credit arrangements made in the past few weeks are in the main satisfactory and such matters are in shape to insure solid foundations, being under the ordinary buyer on his appearance in the search for goods. In the recent past sellers and buyers have pretty well succeeded in emerging from the tangle of taxes and reports, giving them a freer hand to complete adjustments and get ready to show lines. In another month to six weeks the decks should be entirely cleared, most selling agents feel, and a strong showing for the heavyweight season be established in February.

STIR IN MODERATE SUITINGS

Owing to delays in working out cost enigmas, initial buisness so far in the new year has been confined to suitings of moderate value. Blue, gray and green flannels for suitings are prominently in demand, but it is learned in the trade that the venture is not particularly extensive. Selling agents interested in this class of business observe this outcropping of buyers interest with more regard to its evidence that the clothier is coming to life than to the volume of business it implies.

Formal openings for the fall season are talked of more for February than they are for January. Whereas a number of firms had contemplated opening lines early in January, by far the greater number say it will be a month or more until they show goods. The last few days has brought an increasing number of buyers to the city, but the greater number of them make little effort to purchase for anything but immediate needs. Insistent plays for lower prices continue dominant amongst buyers, on one hand, and stiff resistance to a downward revision in costs of materials, on the other, makes it a test of patience and endurance. Lately the seller has come to feel that an unreasoning expectancy for bargain values is being replaced by a reasonable intent to accept grade and value at points that might be classed as middle or high. Ideas of a descending scale of prices to no particular low limit are disappearing almost as rapidly as they crowded into the market a few weeks back. In other words the market is assuredly coming to a point of stable estimates, letting the high cost and low cost interests divide amongst themselves as they will, after the manner of those of political turn who become "big navy" or "little navy" men, but are united on the one fact: that it shall be a "winning navy" be it big or little.

Men's Wear Trade Notes

Announcement is made of the formation of the Edmund Wright-Ginsberg Co., a $1,000,000 factor and commission house, which is now in process of incorporation. Edmund Wright, who for 29 years was with Frederick Vietor & Achelis, and is a recognized authority on credits, will resign April 1 to become secretary-treasurer of the new company. A number of arrangements to act as factors are said to be tentatively closed. The company will occupy offices in the Mills & Gibbs Building, Fourth avenue and Twenty-second street. Jacob Ginsberg, president of the new concern, and his brother Arthur, the vice-president, were formerly engaged in the woolen and cotton goods business in Montreal, Canada. Frank Lyons, also of Frederick Vietor & Achelis, is to be credit man of the new company.

H. E. Peabody, selling agent of the Shelbourne Mills, has become a partner in the firm of Patterson & Greenough, as of January 1. The new partnership means the amalgamation of the selling forces of the Shelbourne Mills and of the Waterloo (N. Y.) Woolen Co., of which Patterson & Greenough have long been the selling agent. This union also brings together two of the most prominent men in the textile field associated with the Government service during the war. Mr. Peabody was the chief of the Woolen Division of the War Industries Board and Mr. Patterson chief of the Foreign Wool Division of the War Industries Board.

WOOL CONSUMPTION

Less Wool Used in November Than in October

In the month of November, 1918, the consumption of grease, scoured and pulled wool in this country amounted to 38,282,723 pounds, while in October 48,692,509 pounds were used, according to the Bureau of Markets of the Department of Agriculture.

For securing this information the Bureau sent schedules to 560 textile manufacturing concerns in the United States. In addition to the reports tabulated, 77 concerns reported no wool consumed, 3 returned schedules stating that their raw material consisted of tops, yarns and wastes, and reports from 5 concerns, having a capacity of 35 sets woolen cards and 10 worsted combs, were not received in time to be included in the tabulation.

The detailed figures of the consumption of wool in November are as follows:

Class and Grade.	Grease.	Scoured.	Pulled.
Fine.			
Combing—			
Domestic	4,144,447	47,413	107,047
Foreign	3,614,067	177,643	300
Clothing—			
Domestic	517,007	401,673	107,321
Foreign	301,818	624,228	31,582
½ Blood.			
Combing—			
Domestic	1,855,404	358,966	232,211
Foreign	2,271,993	43,061	60,202
Clothing—			
Domestic	322,701	485,929	148,775
Foreign	52,147	373,964	33,555
¾ Blood.			
Combing—			
Foreign	1,391,176	325,489	.....
Clothing—			
Domestic	349,620	632,858	153,792
Foreign	262,385	376,439	31,792
¼ Blood.			
Combing—			
Domestic	3,040,300	205,450	211,786
Foreign	2,534,080	479,038	7,620
Clothing—			
Domestic	250,587	448,598	116,907
Foreign	256,243	2,315,376	30,294
Low or Lincoln.			
Combing—			
Domestic	56,349	32,482	5,887
Foreign	2,787,243	14,596	2,182
Clothing—			
Domestic	13,418	62,488	8,870
Foreign	288,301	101,305	14,175
Carpet.			
Combing—			
Foreign	563,446	80,031	.....
Filling—			
Foreign	1,173,944	230,779	81,193
Grade Not Stated.			
Domestic	127,645	42,829	200
Foreign	.....	11,183	.....
Totals—			
Domestic	12,786,573	3,213,332	1,340,548
Foreign	15,496,843	5,153,132	292,295
Grand totals	28,283,416	8,366,464	1,632,843

Oppose Rates on Grease Wool

WASHINGTON, D. C., Jan. 7.—Armour and Company to-day filed a complaint with the Interstate Commerce Commission against William G. McAdoo, Director of Railroads, and a large number of railroads. The complaint sets forth the fact that shipments of wool in grease have been made by the firm since December, 1916, from Kansas City, Kansas, and Chicago to Philadelphia and many other points. The complaint states that "unjust and unreasonable rates" have been asked for the shipments. The Armour company asks for a hearing, that reasonable rates be put into effect for wool in grease in the future and that reparation amounting to $30,000 be awarded.

Wool Growers' Meeting Postponed

The annual convention of the National Wool Growers' Association, scheduled for January 16, 17 and 18, at Salt Lake City, Utah, has been indefinitely postponed. The epidemic of influenza in Salt Lake City caused this action.

RECONSTRUCTION TOO SLOW FOR DRESS GOODS

Factors Declare Adjustment Period Consumes Entirely Too Much Time—Outcroppings of Interest in Trade

The cloak and suit trade is not showing much interest in pending developments, being more intent on filling in for the spring trade, of which there are reports of good sales coming in especially from the middle western territory.

Jobbers will be in the market next week, brought to the city by January conventions, and from advance reports should be considerably interested in goods to fill in depleted stocks. Mere matters of price are not expected to deflect the return of their business to more normal channels. Sellers feel that cautious buying may obtain on price account for a limited period only. If the merchant can get along with ten or twenty pieces, he will do so, but after a time of averaging out on his war cost staples, a break out on novelties will help the trade swiftly to more likeability of operation. The volume of business, once it gets going, it is expected will pick up fast.

PRODUCTION ROUNDING TO SHAPE

Selling agents hear from their principals that adjustments on war contracts are proceeding rapidly. Most factors have little fault to find with the adjustment terms, aside from the restrictions upon taking back wool in broken lots. Coarse grades of wool and coarse yarns are of no use to makers of fine goods, otherwise allowances are regarded as liberal and presenting few difficulties.

GETTING TOGETHER ON YARNS

The civilian yarn situation is also said, according to gossip in the trade, to show more life and inclination to approach acceptable levels. 2-40s half-blood, Bradford spun, are reported now under contract down to $2.54 in this market and while that is not within 14 to 24 cents of estimated worth to the manufacturer, still it is far different from $2.90 to $3.

VIEWS DIVERGENT

Two views of the reconstruction period, as to the presence and extent of it, is found among selling agents. One is that the market may be quite well through it, another that it began with the signing of the armistice and has hardly made itself felt. The latter view is a rather disconsolate one and not in keeping with the confidence and patience more generally found. It is the sellers who are still kept in a state of incertitude by the gradual settling of the market who feel that things are going too slowly. They would rather have all the losses marked off all at once and a decisive foundation on which to build, than to be continually facing lowering values on their merchandise.

Dress Goods Trade Notes

The spirit of optimism is not dimmed among selling agents by the slow-dropping course of wool, or surplus of merchandise, and an inspiriting volume of business is quite generally believed to be assurred after the reconstruction period.

Opinion as to the extent of the re-

The CHICAGO
APPROVED PORTABLE
WATCHMAN'S CLOCK

with its special Waltham movement, its lock stations and its superior quality throughout, is especially desirable for mills and factories and for either in-door or out-door patrol

Write for booklet

CHICAGO WATCHMAN'S CLOCK WORKS

No. 9 Church St. NEW YORK — No. 56 East Randolph St. CHICAGO, ILL.

CRESSON-MORRIS CO.

POWER TRANSMITTING MACHINERY

We make a complete line of Power Transmitting Machinery, Shafting, Rope Transmission, Machine Moulded and Cut Iron and Steel Gears for heavy service.

CRESSON-MORRIS COMPANY

ENGINEERS *FOUNDERS* *MACHINISTS*

PHILADELPHIA, PA.

SPECIAL BELT NEEDED?
"FISHER" Leather Belting

Can be run in any position where power can be transmitted by BELTS.

We make several types of

LEATHER BELTING

Each one SPECIAL in character

Why not get our booklets and samples?

The FISHER LEATHER BELTING COMPANY, Inc.

Philadelphia — Charleston, West Va.

Nebraska Blaugas Co., Omaha, Neb.

Caldwell

Structural Towers For Permanence

When you erect a Caldwell Structural Tower, you have equipped yourself with the permanence of a sky-scraper.

The highest type of steel construction known is used in the Caldwell Structural Tower. It is designed by engineers and backed by our experience of thirty years.

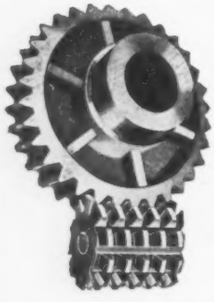
The Caldwell Structural is built for the man who wants the best and is willing to pay for it.

Send for Catalogue

W. E. CALDWELL COMPANY

Incorporated

2060 Brook Street — Louisville, Kentucky



Miracle? No! EFFICIENCY

We turn **GEARS** out so fast—and you can't beat the quality—that our customers often think it a miracle. But it's just plain efficiency. For instance, we have a machine that makes three gears at one time, all different sizes. Your order will be our evidence.

Catalog?

Philadelphia GEAR Works 1120-1128 Vine St. Philadelphia

Bakelite Micarta-D
Gears and Pinions

THE structural and wearing qualities of these gears make them preferable to rawhide. Impact test equal to steel. Unimpaired by oil saturation.

Noiseless

Let us demonstrate their superiority over others

William Ganschow Co., Washington Blvd. and Morgan St., Chicago

FANS, BLOWERS, AND EXHAUSTERS

of all types

For Ventilation, Forced and Induced Draft, and Air Conditioning

PROMPT DELIVERIES

MASSACHUSETTS BLOWER COMPANY

WATERTOWN, MASS.

Pulley and Gear Forcer.

We build a simple, powerful and very effective machine for removing gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.

BAMFORD & SMITH, Providence, R. I.

GRAVITY and PRESSURE **FILTERS**

Hypochlorite Apparatus and Water Softening Plants

The New York Continental Jewell Filtration Co., General Offices, Nutley, N. J.

THE CLEVELAND WORSTED MILLS ©
ESTABLISHED LOOK AT THE CLOTH 1878

THE TASTEFUL

harmonizing of colors and the permanency of our dyes gives CLEVELAND WORSTEDS an artistic and identified appearance.

We call it—INDIVIDUALITY.

LOOK AT THE CLOTH!

Cleveland Worsted Mills Company
Spinners, Weavers, Dyers
GEO. H. HODGSON
(Vice-President and General Manager)
Cleveland, Ohio, U. S. A.

CORONET
FANCY
WORSTEDS
AND
PIECE DYES

MILLS AT
MAPLEVILLE, R. I.

New York Office and Salesrooms
45 E. 17th St., N. Y.

William Schofield Co.
Krams Ave., formerly Church St.
MANAYUNK, PHILA., PA.

TEXTILE MACHINERY

Makers of Rag, Wool, Hair, Curled Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.

SPECIAL MACHINERY BUILT
GENERAL MACHINERY REPAIRS
Relagging Picker Cylinders a Specialty

Telephone Main 3593 Established 1854
CROSBY & GREGORY
HEARD, SMITH & TENNANT
PATENTS
Old South Building BOSTON
PATENTS AND PATENT CAUSES TRADE MARKS COPYRIGHTS
Special Attention To Textile Inventions

French TEASELS
JACOB N. CHESTER
109 Broad Street New York

construction period underwent radical revision lately. When the armistice was signed, 90 days appeared a long time, and adequate to bring the market to a well-defined direction. Now it is: "Sixty days gone and nothing worth mentioning done yet" one seller observed this week, "and it may be late in February before we get anything opened that is worth while."

In storm serges prices are talked of as probably opening around $1.52½, $1.77½ to $2.10.

WOOL IMPORTS FREED

Will Be Followed by Elimiantion of Minimum Prices at Auctions

WASHINGTON, D. C., Jan. 8 (Special).—The War Trade Board officially announces the removal Jan. 10 of all restrictions upon the importation of wool, tops, noils, yarns and wastes from all non-enemy countries. This releases importers from giving the Government options to purchase imported wools at fixed prices. It allows unrestricted importation from South America and South Africa of wools for private account. Importers will be required to secure licenses for importing these staples, but licenses will be issued freely for shipments from all non-enemy countries.

The Board's action was taken at the suggestion of the Purchase, Storage and Traffic Division, of the General Staff of the War Department, and the latter states officially that so far as the interests of the War Department are concerned there is no reason why the wool market should not be re-established on a free competitive basis. This is taken to mean that minimum, or upset, prices will be eliminated at the next series of Government wool auctions in Boston; in fact, there is excellent, although unofficial, authority for making this assertion.

Wool Manufacturers Meet

A special meeting of the Executive Committee of the National Association of Wool Manufacturers and the new tariff committee of the Association, of which President Frederic S. Clark is chairman, was held at the rooms of the organization in Boston on Thursday. The principal feature of the meeting was an address by Chairman F. W. Taussig of the U. S. Tariff Commission.

Conservation Division Change

WASHINGTON, D. C., Jan. 6.—The Conservation Division of the War Industries Board, which became on Jan. 1 connected with the Department of Commerce, is to be known as the Industrial Co-operation Service. John Cutler and Richard Lennihan, who were connected with the Conservation Division since its organization under A. W. Shaw, will remain with the new service for several months. Just exactly what the Industrial Co-operation Service will do has not been entirely worked out by Secretary Redfield. Some kind of a definite policy, it is expected, will be announced in the very near future.

Garfield Sale Confirmed

The board of review on sales of former German-owned property sold by the Alien Property Custodian has confirmed the sale of the Garfield Worsted Mills. The purchaser of Garfield mills at the auction held Dec. 9 was John H. Love, of New York, who was the sole bidder, and who bid $1,661,476.

YOU MAY TRY IT BEFORE YOU BUY IT
½ MINUTE TO CUT YOUR STENCIL ADDRESS
A FEW STROKES OF THE BRUSH AND YOUR SHIPMENT IS
GONE
OUT AND

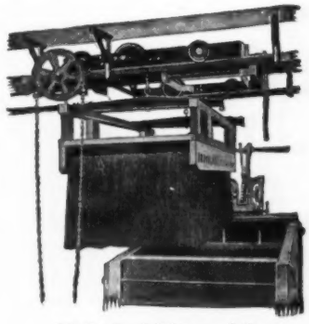
MARK YOUR SHIPMENTS WITH A DIAGRAPH
(Built to Last a Business Life-time)

A Size for Every Need

Simplicity, Speed, Endurance — These have made the DIAGRAPH famous everywhere for fifteen years. Furthermore, the DIAGRAPH performs a broader and more useful range of necessary work than is possible by any other construction. **The Jumbo DIAGRAPH cuts characters 1 3-4" high—much the largest character cut by any machine. With it you can now quickly and successfully stencil-mark directly on bales or bundles in the heaviest burlap.** You cannot now name the leading shippers in any leading industry anywhere without naming owners of DIAGRAPHS in quantities of from 1 to 100 or more machines. (Also hundreds used by the U. S. and British armies and navies and other departments.) That's why it will pay you to see and try the DIAGRAPH first.

The DIAGRAPH pays for itself. Simply ask us today to send you one prepaid. Give it a thorough trial. Buy it if you like it. Otherwise return it at our expense. You need a DIAGRAPH right now—why wait?

DIAGRAPH STENCIL MACHINE CORP. 2117 NORTH NINTH ST. ST. LOUIS, MO.



Method of lifting while changing liquors

DYEING WOOL AND WORSTED YARNS

Three men will operate five machines and do the work of ten men.

In the City of Philadelphia, Pa., the largest center for this work, we have over 300 machines in operation, most of them in job dye houses.

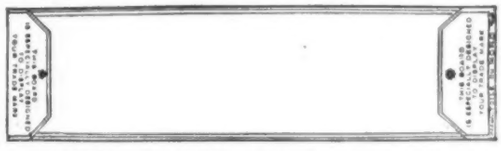
With our machine there is no felting or matting, no cross winding or breaking of leash bands, and the winding condition and colors distinguish the yarn from that dyed by any other means.

Patentees and Sole Manufacturers

Hussong Dyeing Machine Co.
Groveville, N. J.

Twenty Years Manufacturing Cloth Boards
THE CHAFFEE PATENT CLOTH BOARD
They Save Their Cost in Freight Clean, LIGHT and Strong

Made of Paper and Wood
Need no covers
Will not Split or Warp; not liable to break



BOX SHOOKS and CLOTH BOARDS

M'f'd by CHAFFEE BROTHERS CO., Oxford, Mass.

HOWE MILL CRAYONS

are the most perfect crayons so far produced for all uses in textile mills.

They never injure the fabric and are the most economical and satisfactory to use.

Write for Samples and Prices

HOWE MILL CRAYON CO. Lowell, Mass.

COTTON MANUFACTURES

EXPECT BIG EXPORTS, BUT FACTORS CAREFUL

Export Business Houses Are Optimistic, But Are Laying Careful Foundations for Future Trade

Much has been said about export trade that was true at the time it was said, but since Nov. 11 the world has been sailing on a new track, and trade factors have to take stock of the changed situation. Premature attempts by eager adventurers to exploit export markets on the old lines had better wait. There is no danger that Americans will know too much about foreign markets but there is great danger that they may know too much that isn't true. Old established export houses report that readjustment is bound to be a work that will tax their resourcefulnesss and take time to straighten out. There will be no such thing in the future as "taking a flier in exports" for the sake of a quick turnover and a smart profit. Neither manufacturers nor selling agents of textiles are disposed to further the ambitious plans of individuals when they themselves are in doubt about the future and basing their own perspective on probabilities. Strong factors must be the path finders.

IN A BIG WAY

The American Exchange National Bank of New York, in its circular of Jan. 1, commenting on the outlook for the expansion of export business, remarks that indications point to a solid foundation for prosperity. Great industrial corporations and other strong concerns are availing themselves on the provisions of the Webb bill to push their export business. Small manufacturers, for whose special benefit Congress passed this bill, do not seem to be grasping the opportunity. It is alleged by many that they cannot find salesmen who speak foreign languages and understand foreign business customs.

BALANCE OF TRADE

America has become a creditor nation in the last four years. The "invisible balance of trade" will hereafter flow in our direction. We shall have to finance our debtors for some time to come, but the change in our financial relations with the rest of the world will add constantly to our financial resources and our ability to extend credits to foreign countries and merchants.

ADVERSE REPORTS

From first hand sources word comes that trade has not been good in the Argentine, and that wholesale houses have had little business since October of last year, and that retail distribution has suffered a falling off of one-half during the few months past, and that there is no demand for merchandise. Word from the Orient is to the effect that trade is looking forward to some radical changes, and that new markets are being investigated by the larger import corporations. Prices of textiles are high and bound to remain so at present as no country owns raw materials at low prices, but this condition cannot continue indefinitely. Readjustment may be hastened or it may be delayed, in any case the situation calls for strong handling.

YARNS FOR EXPORT

The inquiry for cotton yarns suitable for export is growing, but what extent it has developed into business in this market is problematical. Rumors of large sales are current but verification was lacking when certain of these reports were investigated. That a large export business in cotton yarns waits on a satisfactory market is understood, and that special terms to accommodate large buyers is a feature of the market is also accepted as true.

SUBSTITUTE COTTONS

German Fabrics Not Sufficient for Total Population

WASHINGTON, D. C., Jan. 6.—The following information has just been received here relative to a recent German cotton substitute exhibition:

"An exhibition of German cotton substitute materials was recently opened at Leipsig. Count Bitzthum V. Eckstedt, Minister of State (Saxony), stated in his address at the opening of the exhibition that, although the cotton substitutes thus far deevloped 'would prevent their enemies from cutting them off from clothing materials,' yet it should not be assumed that such substitutes would cover Germany's requirements after the war—unless Germany was willing to be tributary to foreign countries—'the aim of England and the United States.' Our enemies desire to monopolize everything. Should they succeed, then eight to ten per cent. of our population will be without bread. The factories would have to close and the working men would emigrate."

In connection with a cotton thread allowance, the report says:

"A notice issued by the Government Clothing Office states in effect that the allowance of cotton thread for the second half of the calendar year 1918 will be fixed at one spool of 200 meters of thread for every two consumers. The thread will be sent by the Central Distributing Office to the various local Government offices, which, in turn, will look after its distribution according to certain regulations adopted by the Central Office, but based upon the abovementioned allowance."

To Legalize Contracts

WASHINGTON, D. C., Jan. 4.—The Senate Committee on Military Affairs yesterday reported favorably to the Senate the Hitchcock contract bill "to legalize informal or defective orders for war supplies and materials; to provide for the cancellation of orders and contracts; for the reimbursement of contractors and manufacturers; for the readjustment of claims on canceled contracts or orders; to provide for the partial payment of awards pending final determination, and for the creation of an adjustment commission." This bill is much more comprehensive than the Dent bill of the House.

Banking Connections Abroad

The First National Bank of Boston is sending two of its senior officers to Australia and the Far East to establish further foreign banking connections. C. F. Weed, Vice-President of the bank, and D. A. de Menocal, Vice-President of the First National Corporation, will leave Boston about the 20th of this month, sailing from San Francisco directly to Australia. After a few weeks in Australia, to be spent principally in Sydney and Melbourne, they will go to China and then return by the way of Japan.

BLANKET AND GINGHAM LINES OPENING

Nearly a Month Late But Earlier Than the Trade Thought Likely—Prices Not Named

The opening of blanket lines for inspection even with reservations as to prices evidences a reviving interest in things normal, and while prices are not named they wait only on the buyer's motion. There are still stocks of merchandise in buyers hands that have to be considered by the trade before announcing a campaign policy for 1919. Openings are being made this week that are nearly a month later than was the case when openings took place last year. Goods were bought last year at high prices, bought with relative freedom. To the consumer they were not only high but dear. To what an extent those high-priced goods went into consumption is evidenced by stocks on hand, and much of the buyer's reluctance is attributed to balances of last year's purchases that have lost their fascination in the buyer's eye. The last of them must go if the thing is humanly possible. It is a part of readjustment, an essential part, that shelves should be swept clean to make way for the new, and there are still two months of winter in which to do it.

THE MAIN THING

The trade is by no means idle, factors have their regular outlets that continue regular, if not normal, and there is a sufficient advance business in the carryover from 1918, and sufficient current of business going on order to take up production as it comes forward. There is actually a relatively contracted over-run and fewer spots than normal. Confidence is growing, and that is the main thing—that the trade should be in a frame of mind to do business when business arrives, if not on schedule, at least willing and ready and in a spirit of confidence.

SIXTY-DAY LIMIT

The trade in some respects is temporarily nonplused, but when the occasion for this disturbance is considered the reaction is relatively slight. The next 60 days it is confidently expected will go far toward reconstruction. About that time a rough estimate of the acreage to be devoted to this year's cotton planting will be available, and with prices as they are great inducement is offered to make an effort for a large crop. Cotton goods are high, not only here but everywhere, and they have been profitably sold. To what extent this may influence the trend of the next 60 days will be gradually demonstrated. In the meantime buyer and seller will reach an understanding because the thing is unavoidable.

The date set for naming at least one other prominent line of blankets is Jan. 20. Prices will be named with the opening of the lines because it is considered the proper thing to do, and to do away with any doubts that are of no value to the trade under the circumstances. Everything that legitimately serves to clarify the atmosphere is a constructive step in the right direction. The difference between obstruction and reconstruction is all in the day's work. Construction gets out its tools and goes to work on the job, while obstruction, Micawber like, waiting for something to turn up, appraises the difficulties, criticizes the plans and watches for his neighbor to start something. Sellers want business, buyers want a market they can understand and the market waits on a basis for action.

THE RIGHT PRICE

No great amount of business is ever done on the lowest price, but on the right price, that is because of confidence. The hardy sailor doesn't care how troubled the waters are if the vessel is staunch. The workman takes no reckoning of the height of the scaffold if it is safe—that's confidence of the kind that factors are planning for. A prominent Southern mill wired that it would take no more business on the prices lately offered by buyers, and also withdrew spots. At the same time it refused to name a price on the order refused. The goods in question are print cloths, on which a price should soon be forthcoming that will stand alone. Lack of confidence on the part of the seller does not invite confidence on the buyer's part.

It is universally admitted that confidence is the one thing needed, confidence within and from without. The trade is confident, every factor says as much, only the demonstration is lacking. That is a state of affairs that will be corrected, the question is when. The best informed factors are of the opinion that 60 days will do it, that affairs will be running by that time. There is hardly a doubt of it, but there are others who are looking for earlier action. The hard common sense of the trade is working.

Cotton Goods Trade Notes

Harry L. Bailey, who has severed his connection with the War Industries Board was admitted as a member of the firm of Wellington Sears & Co., on January 1st.

Converse & Co., Hughes-McCampbell department have been appointed sole selling agents for the Montala Manufacturing Co., Montgomery, Ala. The mill has about 300 looms and manufactures drills and sheetings. Formerly sold direct.

Robert W. Bole announces that he has withdrawn from the firm of Wilmerding & Bisset and has associated himself with Fred. B. Voegeli in the management of the Easton Finishing Company of Easton, Pa. Mr. Bole will take charge of the New York office of the company, which will be located at No. 43 Leonard street.

The Hunter Manufacturing & Commission Co., has been appointed sole selling agent for the Echota Cotton Mills of Calhoun, Ga., manufacturers of sheetings.

Taylor, Clapp & Beall have been appointed sole selling agents for export for the Acheson Harden Co., of Passaic, N. J., handkerchiefs, and Wm. Whittaker & Sons, Philadelphia, high grade tickings.

William E. Brown, formerly vice-president of A. G. Hyde & Sons, and H. M. Barlow, formerly second vice-president and manager of A. G. Hyde & Sons, have opened a cotton goods converting business under the firm name of Brown & Barlow, as a department of A. D. Smith & Co.

Louis A. Hodgkinson, who represented A. G. Hyde & Sons in the New York market for more than 20 years, is associated with Morse Bros. & Ertich.

Amory, Browne & Co., will open on

WATTS, STEBBINS & CO.
SELLING AGENTS
44-46 Leonard Street New York
Brown and Bleached
Sheetings, Shirtings, Drills
Cambrics, Longcloths,
Lawns and Nainsooks
For Home and Export Markets

W.M.DAVIS COMPANY
Macon, Ga.
Investment Dealers
STATE AND MUNICIPAL AND COUNTY BONDS
GUARANTEED STOCKS OF SOUTHERN RAILROADS
Southern Cotton
Mill Stocks

A. M. Law & Company
Spartanbrug, S. C.
Dealers in
Southern Mill Stocks
Located in the center of the Southern Cotton Manufacturing. Twenty years in the business.
CORRESPONDENCE SOLICITED

ESTABLISHED 1844
BENJ. BUCKLEY'S SON
(WM. J. BUCKLEY) Gun Mill, PATERSON, N. J.
Manufacturer of all kinds of **Spindles, Flyers, Rings, Tubes, Caps, etc.,** for Cotton, Silk, Flax, Woolen and Worsted **Machinery.**
Roving Spindles and Flyers a Specialty. Light Forgings.
REPAIRING OF ALL KINDS

MAKE OUT A LIST NOW of the idle Machinery or Supplies which you cannot use. Send it to the Textile Clearing House department of *Textile World Journal*. We will tell you how much space to take and the cost of the advertisement.
Textile World Journal.

January 20 the following lines yarn dyed goods: Loile du Nord, Imperial Chambray, Treppan Zephyr, Kalbarnis Zephyr, and Red Rose of Lancaster ginghams, prices to be named later, but buyers are to be given an opportunity to make selections, and to secure apportionate quantities.

Catlin & Co. are showing for inspection the new and improved lines of the Tremont and Suffolk Mills wool finished blankets which will be known hereafter to the trade as the T & S lines, numbered in sequence. It is proposed to familiarize this trade in the domestic market and the markets of the world on both blankets and napped goods. The new blankets are remarkably styled and finished.

Amory, Browne & Co. will open Nashua Staple and Woolnap blankets on January 20 at which time prices will also be named on the product.

REVENUE BILL "JOKER"

Amendment of Senator King Meets Storm of Protest

WASHINGTON, D. C., Jan. 7.—What is declared to be a "joker" slipped into the Revenue Bill just before it was passed by the Senate, has set up a storm of protest from the business interests all over the country. Hundreds of letters have reached Senators and members of the conference committee protesting against this amendment, which was proposed by Senator King, of Utah, in the closing hours of the debate and accepted by Chairman Simmons of the Finance Committee.

This amendment would require any person who has contracted with the Government for supplying any materials or doing any work for the Government since April 6, 1917, to file with the Commissioner of Internal Revenue and the Attorney General within sixty days after the passage of the bill, "a true and corrected copy of every such contract, undertaking, agreement, or transaction, together with a true, accurate, and complete statement of all work and labor performed and materials and property supplied and an account of all monies or other things of value received, expenses incurred, and profits made and realized from such contract, undertaking, agreement or contract."

The burden of the complaints is that there are not enough bookkeepers and clerks in the United States to get out such reports within the time specified and if the reports were sent to Washington there would not be enough store room to hold them. It is argued further that under this amendment every one who supplied a load of coal, a keg of nails or a bundle of lead pencils to the United States or to a person having a contract with the Government since the declaration of war would have to file such a report. There is a strong opinion at the Capitol that when the conferees get together and the real purport of this amendment is disclosed to them, they will not hesitate long in striking it out.

Approve Increased Cotton Rates

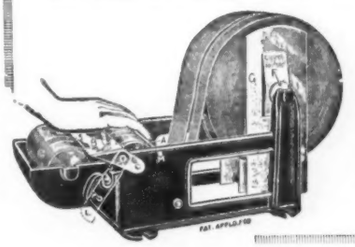
WASHINGTON, D. C., Jan. 6.—The Interstate Commerce Commission has approved for filing the proposed increased rates on uncompressed cotton and cotton linters, from Fort Smith to St. Louis, Mo.; East St. Louis, Ill.; Hannibal, Mo., and East Hannibal, Ill.

L. F. DOMMERICH & CO.
Finance Accounts of Manufacturers and Merchants
Discount and Guarantee Sales
General Offices
254 Fourth Avenue
NEW YORK

CLARENCE WHITMAN & SON, INC.
SELLING AGENTS
43 Leonard Street and 212 Fifth Avenue
NEW YORK CITY

ESTABLISHED 1868
G. K. SHERIDAN & CO.
Commission Merchants
290 Broadway NEW YORK
COTTON DUCK
SAIL WIDE ARMY

WM. H. HARRISS
TEXTILE MANUFACTURER AND BROKER
366 BROADWAY, NEW YORK
WISHES TO ANNOUNCE THAT AFTER MANY MONTHS ABSENCE WITH THE COTTON GOODS SECTION OF THE QUARTERMASTER CORPS, WASHINGTON, D. C., AND AS EXECUTIVE SECRETARY OF THE WAR SERVICE COMMITTEE OF THE AMERICAN COTTON MANUFACTURERS, HE HAS RETURNED TO HIS BUSINESS AS COTTON GOODS BROKER, AT 366 BROADWAY, NEW YORK.
TELEPHONE 941 FRANKLIN

SLASHER TAPE

AND MOISTENERS
STENCIL MACHINES,
BOX STRAPPING,
CEMENT COATED NAILS,
BALING TIES
J.R.REGNAS & CO.
ATLANTA, GA.

THE DIXON PATENT ADJUSTABLE LEVER
Changes weight without stopping frames. Gives uniform weight, essential to best results. Half turn of screw adjusts it. All patterns for all makes of frames.

Send for Samples to DIXON LUBRICATING SADDLE CO., Bristol, R. I.

KNIT GOODS

UNDERWEAR BUYING EXPECTED NEXT WEEK

Coming of Jobbers to Attend Convention Expected to Stimulate Trading—Strength Retained

Further openings of lightweight underwear lines have not taken place, and those lines now in the market are attracting no special attention from buyers. It is expected, however, that within the course of the next few days such lines will be in the market and that selling agents will be fully prepared to meet the influx of jobbers due here next week to attend the convention. With the arrival of the buyers the market is expected to assume an active character and a generous amount of business is looked forward to. Basing their assumption on the general scarcity of merchandise in jobbers' hands and the probability that they have become convinced of the stability of current prices, selling agents see no reason for buyers holding off any longer.

DISCUSSING HEAVYWEIGHT OPENINGS

Manufacturers of heavyweight cotton lines have been discussing openings for the last week or ten days. A tentative agreement among them is that lines will not be shown prior to Jan. 15. It is likely that another conference of these manufacturers will be held in this city next Tuesday, and the opinion is expressed by a few selling agents that openings will be further delayed. The continued high price of cotton yarns and the upward trend of raw cotton levels are factors so unsettling to underwear costs that selling agents believe it would be wise policy to defer the opening of heavyweight lines until the yarn and cotton situation assumes a more definite basis.

Wool goods have received no real attention so far as openings are concerned and judging from opinions in the market nothing will be done along this line for several weeks to come. Manufacturers want to know in a more definite manner what the cost of raw wool and wool yarns will be before they attempt to make prices on garments. Inquiries in the yarn market develop an erratic situation among spinners. Prices on many counts are showing sharp recessions from the extreme levels demanded during the stress of war demands. There is, however, considerable variance between prices of different spinners on similar counts, and to take advantage of further declines knitters will probably do little more than cover their actual needs for the present.

CAUTIOUS BUYING LOOKED FOR

When jobbers come into the market there is little likelihood, according to majority opinion of selling agents, that they will operate in a cautious manner in their purchases for the coming season. It is thought that they will buy just enough merchandise to start their salesmen on the road and await returns from retailers before doing the bulk of their buying. That buying eventually will be of generous proportions is not doubted, and in the meantime selling agents and manufacturers alike are content to await developments.

Underwear Trade Notes

Statistically the market is retaining all its previous strength. Production costs are just as high as they have been, and while majority opinion in the trade is that prices will be lower eventually, the recession is expected to be gradual and not occur during the lightweight season.

Manufacturers of heavyweight wool underwear may meet in this city the day previous to the opening of the jobbers' convention to discuss trade conditions in general and the opening of lines in particular.

Taylor, Clapp & Beall have been appointed sole agents for export by the Augusta Knitting Co. of Utica, N. Y.

KNIT GOODS SHOW

Phila. Commercial Museum Secured Again with Spacious Quarters

The 1919 convention and exhibition of the National Association of Hosiery and Underwear Manufacturers will be held in the week of May 12-17 in Philadelphia as usual. The announcement is also made by Secretary C. B. Carter that the association has been fortunate enough to secure for this convention the Exposition Building of the Philadelphia Commercial Museum, Thirty-fourth and Spruce streets. It will be recalled that the 1917 exhibition was held in these large quarters which are so well adapted to the ever increasing demands for space. Therefore it will undoubtedly be welcome news for exhibitors, a large number of whom have already made reservations for the exhibition.

The thousands of exhibits of the Commercial Museum itself, which proved so interesting to many visitors to the 1917 convention, will possess added interest this year because of the general desire to become more fully acquainted with the products of other countries and to learn something of their requirements, with a view to securing a larger export trade. The chief feature of value, however, for the Knitting Arts Exhibition, is the generous space afforded by these quarters, permitting a display of machinery, equipment and supplies, etc., in keeping with the scope of the industry. It will be recalled that occupancy of the Commercial Museum was impossible last year by reason of the fact that it was taken over by the Government as a distributing warehouse for army supplies. The building still contains a great variety of stores, including quantities of knitted articles for military use. A year ago the National Association cheerfully and patriotically yielded its rights by lease to the building, and this is being reciprocated by officers attached to the Quartermasters' Department who have promised to have these stores removed in time to prepare the spacious hall for this exhibition.

Textile Club Meeting

The Southern New England Textile Club is holding its seventy-sixth meeting and dinner at the Narragansett Hotel, in Providence, this afternoon. The club will listen to an address on the Battle of the Dardanelles by Sergeant A. T. Coubrough, of the Australian Imperial Forces, one of the few survivors of the famous first twenty thousand "Anzacs." This is the first meeting of the organization to be held in Providence this season, the original date having been set for Dec. 10, and postponement becoming necessary on account of inability to secure a speaker.

HOSIERY MARKET WITHOUT FEATURES

Inquiry Improving, But No Real Life to Demand—Prices Retaining Their Previous Strength

So far as actual trading is concerned, the hosiery market remains particularly quiet. Only a few orders are being received and they are for small amounts. It is the belief of several selling agents that jobbers are not only covering just their positive needs but are also trying out the market.

During the last several days an encouraging feature from the selling standpoint has been the increased number of inquiries. True, little of it has developed into actual business, but it is believed that the placing of business will not be delayed for more than a few weeks. Jobbers through their inquiries have come to realize that the market is retaining all its previous strength, and that it will probably continue firm for the next several months. It cannot be said that prices are not to be lower, but it is the general belief among selling agents that there will be only a gradual recession from present levels and no sudden drop.

The idea of a sudden drop in prices is ridiculed by most of the selling agents. They point to the fact that manufacturers are unable to produce hosiery at less cost than during the previous several months. Raw material, yarn and labor are no lower, and until there is a recession in production costs no material lowering of selling prices can be looked for.

TAKING OLD DELIVERIES

Manufacturers who have carried business on their books since early last year, and on which deliveries were deferred to take care of the Government demands, have been receiving requests from buyers for deliveries on such orders. It had been the intention of several manufacturers to cancel such parts of those contracts that remained undelivered on Dec. 31. They had the right through clauses inserted in the contracts at the time of their acceptance. The sudden ending of the war, however, brought a new aspect to the situation and several manufacturers wrote to jobbers asking if they cared to take deliveries on old contracts or have them cancelled. In all but a few instances jobbers have asked to have the contracts continued and many of them are seeking prompt deliveries.

Nothing of a progressive nature has been done in the way of showing wool lines to the trade. It appears probable that manufacturers will do little until they can be more certain of wool and yarn costs. The auction sales of wool in Boston proved disappointing so far as establishing a market basis for the raw material is concerned. In the wool yarn markets there is too much unsettledness for knitters to operate extensively, and until yarn prices assume a more stable basis buying by knitters will probably not exceed the covering of positive near needs. The lack of demand for wool hosiery has also been a factor in delaying the showing of linens. It was believed that as soon as the machinery was open to the civilian trade there would be an active call for merchandise. Interest in such lines thus far has been disappointingly small, yet selling agents are confident that with the settling of conditions generally buyers will be in the market for extensive amounts of wool hosiery. Just now the market is practically bare of such lines, for the Government has taken practically the entire production since last June.

Hosiery Trade Notes

Evidence now available in the market shows that practically all the attempts to cancel contracts following the signing of the armistice were confined to the smaller jobbers. Manufacturers who have been in the city within the week stated that all the big jobbing houses called for full deliveries on their contracts and did not become panicky over the ending of the war.

Export inquiry is improving and within the week several requests were received by selling agents to send samples and prices. Australian buyers were prominent among the inquirers seeking women's lines.

INCREASED INQUIRY

Cold Weather Brings Sweater Buyers Into Market

The sudden drop in temperature throughout the country has stimulated interest in sweaters, and the market is showing signs of awakening after a long period of dullness. Retail sales are increasing and apparently jobbers have been asked for more merchandise, for several of them have been in the market within the week.

Thus far jobbers have done little more than make inquiries as to qualities and prices. In all instances they have met a strong position among selling agents on the question of prices and probably are more convinced than ever of the small likelihood of material recessions being secured. Manufacturers derived no encouragement for a decline in production costs in the recent wool auctions in Boston. There is, however, a little hope for securing wool yarns at less than recent prices, but conditions in the yarn markets are too far from settled to allow any freedom in purchasing.

An Error Corrected

We regret that through inadvertence an error was made in stating in the previous issue of the JOURNAL that the new hosiery manufacturing corporation to be formed by Charles C. Schoneman and Jacob H. Blaetz, was to take over the present business now conducted by Mr. Blaetz, at Allegheny avenue and Mascher street, Philadelphia. The new corporation will be entirely separate from this business which will be continued by Mr. Blaetz under the same name and along the same lines. The announcement is also made that the name of this new corporation will be the Bla-Shone Hosiery Corporation, instead of the "Knit-Rite," as originally planned. The officers of the new corporation will be Charles C. Schoneman, president and sales manager; Jacob H. Blaetz, treasurer and general manager. As previously stated, the new concern will locate in the Kensington mill district, where negotiations are under way to secure a mill property.

Hercules Seamless Roving Cans

Seamless Roving Cans.

Warehouse Cars.

Floor and Mill Boxes.

Doffing Cars.

A full line of Vulcanized Hollowares.

FIBRE SPECIALTY MFG. CO.
KENNETT SQUARE, PA.

EASTERN AGENTS, The Cronkhite Co.
185 Devonshire St., Boston, Mass.
SOUTHERN BRANCH,
308 Masonic Temple, Greenville, S. C.

Cushing Academy
Ashburnham, Massachusetts

A New England endowed school for Boys and Girls. Education, Culture and Character Making. Send for Catalogue.

Harvey S. Cowell, A.M., Pd. D., Principal

Arthur H. Lowe
President, Board Trustees

KNIT CLOTH DRYER

Electric motor driven
Gas heated

For drying circular knit goods quickly

Efficient—Low in cost

MANDEL McIVER CO.
1805 First Ave.
New York City
Tel. 5735 Lenox

Ventilating Engineers and Sheet Metal Constructors

PROMPT SERVICE
RIGHT PRICES

BONE DRY
HOSIERY FINISHING BOARDS

THAT WORK ABSOLUTELY SMOOTH

JOS. T. PEARSON
1825 E. Boston Ave. Philadelphia, Pa.

NET PRICE FOR GOODS

Francis H. Holmes Advocates Uniform Terms on Merchandise

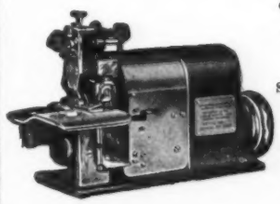
Regarding reconstruction problems in the goods market, Francis H. Holmes, in open letters, links with a plan for the general relinquishment of wools by the Government, by calling for bids for its whole stock of wools, suggestions that cash discounts be done away with on merchandise.

In a letter to William M. Wood, president of the American Woolen Co., Mr. Holmes suggests that the trade is now accustomed, on two or three years' practice, to buying goods on a net basis; "it seems," the letter continues, "as though it were a very good time to establish a net basis price either with the seasons dating as has been the custom, I believe, for many years to date the fall goods from June 1, or even eliminating the dating, and sell the goods on some flat terms anywhere from thirty days to four months without any additional dating. It seems unnecessary, to say the least, to add what was formerly a cash discount to the prices of the various fabrics for the sake of taking the 10 per cent. off on the payment of the bills. If the goods were sold on a net four-month basis with some advantage to those houses that could take advantage of discounting the bills, and the terms could be made to the advantage of the concern buying the goods and paying for them very promptly by getting an excessive discount which would really be a cash discount, there might be something in having some sort of a cash discount, otherwise the prices would appear more favorable with those mills that have been doing business on a net basis."

In a letter to Manton B. Metcalf, president of the American Association of Woolen and Worsted Manufacturers, Mr. Holmes further urges association effort on uniform terms on the distribution of woolen goods both in the clothing and cloaking trade "on some even, equitable basis, the same as is the custom with every other industry. The trade is thoroughly accustomed to buying the goods on net terms, all the manufacturers selling the goods on a so-called direct basis; and I am very sure that it only requires an agreement among the mills that you represent, the American Woolen Co., U. S. Worsted Co. and the Cleveland Worsted Mills, to form a basis of uniform terms under which all goods will be sold by the distributors either with the fixed seasons dating, or on flat terms, which, I think, can be arranged with an excessive discount being offered for anticipated payments."

In regard to the wool situation it seems to Mr. Holmes that the only solution of the Government-owned wool is that the Government should take the wool trade and manufacturers into their confidence; that a catalog should be prepared that would give the exact ownership of all grades of wool controlled by the Government, with the quantities of each grade and the condition of each lot; that the wools should be put on exhibition in the Boston market where they can be examined; and that after a reasonable time the Government should ask for bids for the entire holdings that they have of all classes and grades of wool. The bids should be formally opened and some knowledge would then be arrived at as to the value of the wools, whether the Government deems it wise to sell them or not.

MERROWING



OVERSEAMING
OVEREDGING
AND
SHELL STITCH
MACHINES
FOR
FINISHING
ALL KINDS

Knitted and Woven Fabrics

THE MERROW MACHINE CO.
HARTFORD, CONN., U. S. A.

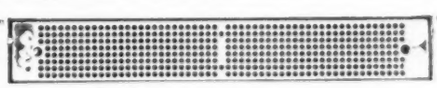
SCHOETTLE PAPER BOX CO.
RALPH J. SCHOETTLE, Manager
WE ARE MAKING A SPECIALTY OF
SILK HOSIERY BOXES
MANUFACTURERS AND JOBBERS WILL DO WELL TO CONSULT US
TRADE MARK AND SPECIAL BRAND PAPERS CARRIED IN STOCK
Front and Laurel Streets Philadelphia, Pa.

NEW ENGLAND BUTT COMPANY
304 PEARL STREET PROVIDENCE, R. I.
BRAIDING MACHINERY
ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS
SOLID SASH AND CURTAIN CORDS
SHOE AND CORSET LACES, BANDING
AND ALL BRAIDED FABRICS

Leo J. Lyons & Sons Co.
MANUFACTURERS AND DEALERS IN NEW AND RECLAIMED
BURLAP
BAGS FOR ALL PURPOSES
589-591 ATLANTIC AVENUE BOSTON, MASS.

NEW ENGLAND TANK & TOWER CO.
EVERETT STATION
BOSTON MASS
WOOD TANKS FOR ALL PURPOSES

PRESSPAPER
Highest Grade
Best Value
Mills
Rainbow, Conn.



SPECIALTIES
For All Purposes
Inquiries Solicited
Address
Hartford, Conn.

JACQUARD CARDS
THE MERWIN PAPER CO.

WATER
WE-FU-GO AND SCAIFE
PURIFICATION SYSTEMS
SOFTENING & FILTRATION
FOR BOILER FEED AND
ALL INDUSTRIAL USES
WM. B. SCAIFE & SONS CO. PITTSBURGH, PA.

SOUTHERN COTTON YARN COMPANY, Inc.

No. 1 Madison Avenue NEW YORK CITY

Selling Agents for

SOUTHERN MILLS

CARDED—COMBED YARNS

MANDEVILLE MILLS 8's to 30's TRADE MM COTTON YARN MARK SINGLE & PLY CARROLLTON, GA.

4's to 120's

ALL NUMBERS

Single and Ply

OKEH MANUFACTURING CO. 8's to 16's TRADE OK COTTON YARN MARK SINGLE GREENVILLE, S. C.

ERWIN YARN AGENCY, Inc.

COMMISSION MERCHANTS

COTTON YARNS

229 Chestnut Street Philadelphia, Pa.

NEW YORK, N. Y. 320 Broadway

BOSTON, MASS. 170 Summer Street

ALPINE COTTON MILLS No. 1
ALPINE COTTON MILLS No. 2
BUFFALO COTTON MILLS
GEM COTTON MILLS CO.
LOCKE COTTON MILLS CO.
OXFORD COTTON MILLS
SEVIER COTTON MILLS CO

CARVER-BEAVER YARN CO., Inc.

SUCCESSORS TO

A. D. SALKELD & BRO., Inc.

ALL NUMBERS Cotton, Worsted

ALL COLORS Wool, Merino

366 Broadway, New York

D. H. Mauney, Pres. Phil S. Steel, Vice-Pres. Jno. J. George, 2d Vice-Pres.
J. S. P. Carpenter, Treasurer D. A. Rudisill, Secretary

Mauney-Steel Company

COTTON YARNS

AN INCORPORATION OF 20 SOUTHERN SPINNERS

DIRECT FROM PRODUCER TO CONSUMER

237 Chestnut Street Philadelphia, Pa.

Eastern Office, 336 Grosvenor Bldg., Providence, R. I.

Southern Office: Cherryville, N. C.

MILLS DESIRING DIRECT REPRESENTATION AND HAVE THEIR PRODUCT SOLD UNDER THEIR OWN MILL NAME WILL PLEASE COMMUNICATE

MARLBORO COTTON MILLS

McColl, S. C.

Manufacturers of

COTTON YARNS AND FABRICS

of all Descriptions

E. D. TANNAHILL, Sales Manager

350 Broadway, NEW YORK

PHILADELPHIA BOSTON CHICAGO UTICA

J. H. DAINGERFIELD, *President* C. B. ARMSTRONG, *Vice-President* A. W. LATTA, *Secy. and Treas.*

GASTONIA COTTON YARN CO.

Direct Mill Agents

High Grade Cotton Yarns

Regular and Reverse Twists, Single and Ply, Warps, Skeins, Cones and Tubes

SOLE SELLING AGENTS

Armstrong Cotton Mills Co.
Clara Manufacturing Co.
Dunn Manufacturing Co.
Hanover Thread Mills, Inc.
Monarch Cotton Mills Co.
Mutual Cotton Mills Co.
Seminole Cotton Mills Co.
Osceola Mills, Inc.
Piedmont Spinning Mills Co.
Pinkney Mills, Inc.
Wymojo Yarn Mills
Lockmore Cotton Mills
Mountain View Cotton Mills

General Offices

MARINER AND MERCHANT BLDG., PHILADELPHIA

Branch Offices

BOSTON: 10 HIGH STREET CHICAGO: 175 JACKSON BLVD.

COTTON HAROLD W. O'LEARY YARNS

201 Devonshire Street, Boston, Mass.

LOWELL YARN COMPANY

308 Chestnut Street PHILADELPHIA, PA.

DIRECT SELLING AGENTS:

Eureka Mfg. Co. .....1's to 5's, Waste Yarn
Catawba Spinning Co. .....9's to 14's carded
Robinson Spinning Co. .....14's to 26's carded
Lola Manufacturing Company....20's carded
Dorothy Manufacturing Co. .....40's K. P.
Avon Mills .....50's to 60's K. P.
Lowell Cotton Mills Nos. 1 & 2, 36's to 70's C.P.
Elizabeth Mills .....50's to 60's K. P. & C. P.
Ozark Mills .....50's to 60's C. P.
Peerless Manufacturing Co. .60's to 80's C. P.

New York Office: 200 Fifth Avenue Boston: 185 Summer Street

Single and Two Ply, Cones, Skeins, Tubes, Chain and Ball Warps for Knitting and Weaving trade.

HARRIS S. DURKEE

COTTON YARNS

396 BROADWAY, NEW YORK

ALBERT RAU & CO.,

Carded or Combed COTTON YARNS

52 LEONARD ST., NEW YORK

HENRY W. TAYLOR'S SONS

Drexel Building, Philadelphia.

Sole Representatives

CROSS COTTON MILLS CO.
Double Carded
24s to 30s Cones

GREENVILLE COTTON MILLS
10s to 20s Cones

YARN MARKETS

QUOTATIONS

The following quotations have been compiled in Boston

COTTON YARNS

CONES

EASTERN PEELERS

	Carded.	Combed.
8s	54 — 55	70 — 71
10s	54 — 56	70 — 72
14s	56 — 57	72 — 74
16s	57 — 58	74 — 76
20s	58 — 60	76 — 78
22s	60 — 62	77 — 79
24s	62 — 64	79 — 81
26s	64 — 66	80 — 82
30s	70 — 72	84 — 86
32s	72 — 74	86 — 88
34s	74 — 76	88 — 90
36s	78 — 80	90 — 92
40s	84 — 86	95 — 1 00

SKEINS

	Carded.	Combed.
2-12s	63 — 64	75 — 76
2-14s	64 — 65	76 — 77
2-16s	65 — 66	77 — 78
2-18s	66 — 67	78 — 79
2-20s	66 — 68	78 — 80
2-22s	68 — 70	80 — 82
2-24s	70 — 72	82 — 84
2-26s	72 — 74	84 — 86
2-28s	74 — 76	86 — 88
2-30s	76 — 78	90 — 92
2-36s	82 — 84	96 — 98
2-38s	84 — 86	98 — 1 00
2-40s	90 — 92	1 00 — 1 05
2-50s		1 10 — 1 15
2-60s		1 20 — 1 25
2-70s		1 40 — 1 45
2-80s		1 55 — 1 60

WARPS

	Carded.	Combed.	Reverse Twist.
2-30s	78 —80	90 —95	Nominal
2-36s	86 —88	95 —1 00	Nominal
2-40s	90 —95	1 00—1 05	Nominal
2-50s		1 10—1 15	Nominal
2-60s		1 20—1 30	Nominal
2-70s		1 45—1 50	Nominal
2-80s		1 60—1 65	Nominal

EASTERN EGYPTIANS

SINGLE SKEINS (COMBED)

30s Nominal	55s Nominal
35s Nominal	60s Nominal
40s Nominal	70s Nominal
45s Nominal	80s Nominal
50s Nominal	90s Nominal

TWO AND THREE-PLY SKEINS (COMBED)

30s Nominal	65s Nominal
35s Nominal	70s Nominal
40s Nominal	75s Nominal
45s Nominal	80s Nominal
50s Nominal	90s Nominal
60s Nominal	

TWO-PLY WARPS (COMBED)

2-30s Nominal	2-50s Nominal
2-35s Nominal	2-60s Nominal
2-40s Nominal	2-70s Nominal
2-45s Nominal	2-80s Nominal

COPS

	Carded.	Combed.
6s & 5s	Nominal	Nominal
10s & 12s	Nominal	Nominal
14s	Nominal	Nominal
15s & 16s	Nominal	Nominal
18s & 20s	Nominal	Nominal
20s	Nominal	Nominal
24s	Nominal	Nominal
26s	Nominal	Nominal

COMBED SEA ISLAND

	Single.	Two-ply.	Reverse twist thread-yarn.
12s	Nominal	Nominal	Nominal
14s	Nominal	Nominal	Nominal
16s	Nominal	Nominal	Nominal
18s	Nominal	Nominal	Nominal
20s	Nominal	Nominal	Nominal
23s	Nominal	Nominal	Nominal
28s	Nominal	Nominal	Nominal
30s	Nominal	Nominal	Nominal
40s	Nominal	Nominal	Nominal
50s	Nominal	Nominal	Nominal
60s	Nominal	Nominal	Nominal
70s	Nominal	Nominal	Nominal
80s	Nominal	Nominal	Nominal
90s	Nominal	Nominal	Nominal
100s	Nominal	Nominal	Nominal

The following quotations have been compiled in Philadelphia, New York and Providence

SOUTHERN YARNS

SINGLE SKEINS—WARP TWIST

8s to 8s	— —51	20s	59 —60
10s	— —51	24s	— —64
12s	— —53	26s	— —66
14s	— —56	30s	— —74
16s	— —56½	40s	— —95

TWO-PLY SKEIN

2-8s	— —56	2-24s	63 —64
2-10s	— —53	2-26s	65 —66
2-12s	— —55	2-30s	73 —75
2-14s	— —56	2-36s	— —83
2-16s	— —59	2-40s	— —95
2-20s	59 —60	2-50s	— —1 05

SINGLE WARPS

10s	— —57	24s	— —65
12s	— —58	26s	— —65
14s	— —59	30s	— —72
16s	— —60	40s	— —96
20s	— —64		

TWO-PLY WARPS AND TUBES

2-8s	— —53	2-24s	— —65
2-10s	— —54	2-26s	— —66
2-12s	— —55	2-30s	73 —75
2-14s	— —57	2-40s	— —95
2-16s	— —60	2-50s	— —1 05
2-20s	— —60		

8/3 and 4-ply skeins and tubes, 60-62c. (dark, 50c.); (white, 54c.); 2-10s and 2-12s slack, 60c.

CONE (FRAME SPUN)

6s	— —50	20s	55 —55½
8s	— —50	22s	56 —57
10s	— —50	24s	60 —61
12s	— —51	26s	61 —62
14s	— —52	*30s	63 —65
16s	53 —53½	40s	— —88
18s	54 —54½		

* Tying in.

BLACK AND WHITE D. & T. SKEINS
(ALL PRICES NOMINAL)
(Carded)

2-20s .. —..	2-30s .. —..
2-26s .. —..	2-40s .. —..

STAPLE COMBINATIONS

2-30s .. —..	20-44s .. —..
10-30s .. —..	26-60s .. —..
14-30s .. —..	16-80s .. —..
16-30s .. —..	16-120s .. —..

BLENDED

2-16s .. —..	2-26s .. —..
2-20s .. —..	2-30s .. —..
2-24s .. —..	2-40s .. —..

EASTERN PEELERS AND EGYPTIANS
(Cones or Tubes)

Combed Peeler.	Combed Egyptian.
2-20s Nominal	2-20s Nominal
2-24s Nominal	2-24s Nominal
2-28s Nominal	2-28s Nominal
2-30s Nominal	2-30s Nominal
2-34s Nominal	2-34s Nominal
2-36s Nominal	2-36s Nominal
2-38s Nominal	2-38s Nominal
2-40s Nominal	2-40s Nominal
2-50s Nominal	2-50s Nominal
2-60s Nominal	2-60s Nominal
2-70s Nominal	2-70s Nominal
2-80s Nominal	2-80s Nominal

CARDED PEELER CONES

10s	52 —53	24s	62 —63
12s	53 —54	26s	64 —65
14s	54 —55	28s	66 —67
16s	56 —56	30s	70 —72
18s	56 —58	32s	72 —74
20s	58 —59	36s	78 —80
22s	60 —61	40s	— —85

CARDED PEELER, SHUTTLE COPS.

8s	— —55	26s	— —64
10s	— —56	28s	— —65
12s	— —57	30s	— —68
14s	— —58	32s	— —70
16s	— —59	34s	— —72
18s	— —60	36s	— —75
20s	— —61	38s	— —80
22s	— —62	40s	— —84

SOUTHERN COMBED SEA ISLAND

WARPS AND SKEINS

2-20s Nominal	2-50s Nominal
2-30s Nominal	2-60s Nominal
2-36s Nominal	2-70s Nominal
2-40s Nominal	2-80s Nominal

SOUTHERN COMBED PEELER

WARPS, SKEINS AND CONES

2-30s	85 —90	2-60s	1 20—1 25
2-36s	90 —95	2-70s	1 40—1 45
2-40s	97 —1 00	2-80s	1 55—1 60
2-50s	1 10—1 15		

SINGLES

12s	71 —72	30s	— —85
14s	72 —73	36s	— —90
16s	73 —74	40s	— —95
18s	74 —75	50s	— —1 08
20s	75 —76	60s	— —1 20
24s	78 —79	70s	— —1 35
26s	80 —81	80s	— —1 50

MERCERIZED COMBED PEELER

CONES—(UNGASSED)

Southern Yarns.	Eastern Yarns.
2-20s 1 18—1 22	2-20s 1 20—1 25
2-30s 1 20—1 25	2-30s 1 22—1 27
2-36s 1 25—1 28	2-36s 1 28—1 30
2-40s 1 25—1 30	2-40s 1 28—1 32
2-44s 1 30—1 35	2-44s 1 35—1 38
2-50s — —1 40	2-50s 1 42—1 45
2-60s 1 45—1 50	2-60s 1 48—1 55
2-70s 1 65—1 70	2-70s 1 68—1 72
2-80s 1 90—2 00	2-80s 1 95—2 00

Extra cost for gassing approximates: 30s and below, 4c.; 30s to 40s, 4c.; 40s to 50s, 5c.; 50s to 60s, 6c.; 60s to 70s, 7c.; 70s to 80s, 8c.; 80s to 100s, 11c.

Less cost for skeins: 20s and below, 3c.; 20s to 30s, 4c.; 30s to 40s, 4½c.; 40s to 50s, 5c.; 50s to 60s, 6c.; 60s to 70s, 7c.; 70s to 80s, 8c.; 80s to 100s, 10c.

CATLIN & COMPANY
COTTON YARNS
SOLE AGENTS FOR
LAWTON SPINNING COMPANY
HAMILTON MFG. COMPANY
TREMONT and SUFFOLK MILLS
and other mills furnishing full range of all numbers
NEW YORK BOSTON PHILADELPHIA CHICAGO

WHEN YOU THINK OF YARNS
You naturally think of yarns of high quality, and where the same can be secured from reputable spinners. Samples of the Groves product convince prospective buyers of the high order of the spinning of the Groves Mills. "Once a customer, always a customer," is the rule that generally applies to users who try out our yarns.
Correspondence solicited. Numbers 50's, 60's, 70's
GROVES MILLS, INC., Gastonia, N. C.
Representative: WM. S. WATERMAN, 825 Widener Bldg., Philadelphia, Pa.
Representative: E. G. HARPER, 512 Insurance Exchange Bldg., Chicago, Ill.

HAMBURGER COTTON MILLS
COLUMBUS - GEORGIA
STOCK DYED SULPHUR COLORS
Olive Drab
Khaki
Black
CONES, TUBES, WARPS
For Knitting and Weaving
Sell Direct and Through Agents—Single and 2-Ply Yarns, 6's-20's

VAN COURT CARWITHEN
300 Chestnut Street, Philadelphia, Pa.
Sole Representative
SWIFT SPINNING MILLS
COTTON YARNS of QUALITY
COLUMBUS, GA.
MUSCOGEE MFG. CO.
White
Oxfords
Silvers
DEAL DIRECT WITH THE MILL

NORCOTT — DOUBLE CARDED YARNS
DIRECT TO CONSUMER
22s to 36s on Foster Cones
INCREASED PRODUCTION—MOST MODERN MACHINERY
Quality—unsurpassed. Evenness—assured.
Cleanliness—equal to combed.
JOHNSTON MILLS
Selling Offices:
CHATTANOOGA, TENN. 820 James Building
NEW YORK 346 Broadway
PHILADELPHIA 308 Chestnut Street

T. E. HATCH
COTTON YARNS
ALL COUNTS AND VARIETIES
77 Franklin Street, Boston, Mass. 949 Broadway, New York

SPUN SILK
YARNS FOR ALL PURPOSES
For Weaving, Knitting, etc. Also SILK NOILS Cops, Cones, Tubes, Skeins, etc.
AMERICAN SILK SPINNING CO. Spinners and Dyers
Admiral and Whipple Streets, Providence, R. I.

Paulson, Linkroum & Co., Inc.
COTTON YARNS
87-89 Leonard St. PHILADELPHIA New York CHICAGO

TILLINGHAST-STILES CO. Cotton and Worsted Yarn
JESSE P. EDDY, Treas. PROVIDENCE, R. I.
HERX & EDDY Incorporated Cotton Yarns and Warps
113 WORTH ST., NEW YORK 441 BOURSE BUILDING, PHILADELPHIA

JOHN F. STREET & CO.
COTTON YARNS
12 So. Water Street PROVIDENCE, R. I.
CHICAGO PHILADELPHIA NEW YORK

JAMES E. MITCHELL COMPANY
COMMISSION MERCHANTS
COTTON YARNS FOR ALL PURPOSES
185 Summer Street Brown Building BOSTON, MASS.
122-124 Chestnut Street, PHILADELPHIA, PA.

ORSWELL MILLS
Fitchburg, Mass.
COTTON YARNS
All Qualities

J. B. JAMIESON
COTTON YARNS of all descriptions
77 Summer Street, Boston
Correspondence Solicited

COTTON YARNS FOR IMMEDIATE DELIVERY ONLY
WRITE FOR STOCK LIST
GEO. B. PFINGST
519 BOURSE BLDG., PHILA.

EWING-THOMAS CONVERTING CO.
Specialists in Mercerized Yarns CHESTER, PA.
Made from High Grade Peeler, Egyptian and Sea Island Cotton Warp, Processed on Cones, Tubes and in Skeins Gassed, Bleached and All Colors.
MERCERIZING AND WINDING FOR THE TRADE
SPLICING YARNS ARTIFICIAL SILKS

H.S. RICH & CO.
COTTON YARNS
150-152 SOUTH WATER ST
PROVIDENCE, R.I.

YARN MARKETS

QUIET BUT FIRM; NO LACK OF FAITH

The Settling of Scheduled Prices to What Is Regarded as a Normal Level Is Assured

Business in cotton yarns was backward this week, but has lost none of its confidence. It has been felt out in a way that has satisfied the majority that readjustment on a fair basis is but a matter of time. Weaving yarns have not made the progress that has been shown by knitting yarns, which are, in a measure, on the way to an organized price basis. On the coarser counts of weaving yarns prices show a decline from maximum figures of 5 to 10 cents a pound, but no general agreement as to uniformity in quotations. The criticism is openly expressed, here and there, that weaving yarns are likely to lag until a move is carried out to establish them on a basis of price to conform to current quotations on knitting yarns.

QUIET BUT CONFIDENT

On the other hand, prominent sellers of weaving yarns are of the opinion that their position is too strong to call for experiments in price adjustment, and that the market is bound to handle itself without stimulants as soon as the demand develops to any active degree. A factor recently returned from the South stated that mills visited by him were well engaged on business that would keep them busy until February, and some well beyond that month. Consumers of weaving yarns are waiting for more light on the market for their own productions, and that entails a delay that spinners cannot hurdle on any terms. There is hardly the same aggressive spirit displayed in forcing the position of weaving yarns that has been shown in the matter of knitting yarns, and the two are discussed in this market from radically different viewpoints.

The market is quiet, but firm. Current quotations are unchanged since last week, but there has been but little in the way of trading to develop any change even if fractional advances are warranted. More general satisfaction is shown in the tendency of the market. A more numerous following admit that, not being in position to lead the market, they are well satisfied to trail along on the basis as established. Limited sales of spots, southern cones, are reported on a basis of 50 cents for 10s.

N. Y. Cotton Yarn Trade Notes

The product of the Flint Manufacturing Co., Gastonia, N. C., is now being sold direct through H. A. Florsheim, 121 East 23rd street, in conjunction with the products of the Gray Manufacturing Co., Arlington Cotton Mills, Parkdale Mills, Inc., Arrow Mills, Inc., and Myrtle Mills, Inc. It will be recalled the Flint Manufacturing Co. was purchased the early part of last year by J. H. Separk and J. L. Gray interests, who own the above six plants. Mr. Florsheim has appointed as his New England representative Thoms Behan, Jr., and H. D. Skinner as Pennsylvania representative.

R. L. Stevens, head of the cotton yarn department of J. Spencer Turner Co., is to withdraw from that connection on March 1. It is reported in the trade that R. L. and C. H. Stevens will start in business for themselves as dealers and selling agents for cotton yarn mills. It has not yet been authoritatively announced who is to take charge of the Turner Co. department as successor to Mr. Stevens; it is stated, however, that the department will be continued under new management.

According to last minute news, the largest cotton yarn order recently taken for export was 200,000 pounds of knitting yarns sold through the Philadelphia office of a large Eastern concern. Special reports aver that yarns for quick delivery are not scarce in the South, and that mills in not a few localities are looking for business. So far as futures are concerned, mills are holding firm, but are willing to shade the top figures for spot business and to market certain quantities of distressed yarns. There are hurried calls for 2-26s from the wire trade, users being hard up for this count. In one instance the mill had but a day's supply on hand. While 73 cents has been recently paid for 2-30s carded skeins, parties to the deal admit that there is none to be had at a lower price than 75 cents.

IMPROVED TONE

Cotton Yarns Still Lack General Activity

PHILADELPHIA, Jan. 7.—Pronounced activity is still lacking in the local cotton yarn trade. Many dealers report an improved inquiry and a better tone to the situation, but there is still nothing in the way of general active trading. Much of the business appears to be for yarns for nearby delivery, as most manufacturers are loath to buy very far ahead hoping, of course, for lower prices. However, many factors who study the situation closely argue that yarn prices will not go much lower, if at all, than they are now. Most of the low prices noted now are due to distressed lots of yarn, or surplus stocks left from Government contracts. Even these are declared to be less abundant than many think, and usually are widely scattered in small lots. The webbing and duck yarns appear to be in the largest individual lots on hand with manufacturers who had been engaged on these goods for the Government. It is stated that manufacturers of grass rugs are taking certain numbers of surplus duck yarns as they fit in well with their products. Other yarns must find an outlet as best they may here and there in normal consumption.

KNITTING YARNS LEAD

The bulk of the inquiry noted to-day is for knitting yarns. Most of this is said to be for nearby delivery, or to fill in with orders already on manufacturers' books. New business on both hosiery and underwear seems to be coming in very slowly. Manufacturers state buyers are making every effort to bear prices, but predict they will be sorely disappointed, and that when a rush comes, which they expect sooner or later, these buyers will find a firm price situation confronting them. In fact knitters selling direct to retailers say they have been getting good business, that retailers are not pursuing the tactics of jobbers, as they need merchandise. Therefore mills following this policy are reported in good shape for business.

WEAVERS NOT ACTIVE

Weaving mills are not at all active

YARN MARKETS—Continued

buyers of yarns. In the first place there is little new business coming their way to provoke any interest in purchases of yarns. What buying is noted, is usually for nearby delivery. Towel mills are dull; carpet mills are up in the air, as what with the strike, and the uncertain basis for their carpet yarns, they have little chance to know where they stand for the future; men's wear mills are receiving no new business of any consequence, while other lines are in about the same shape. Therefore this end of the market is feeling its way gradually.

PRICES' WIDE RANGE

As for prices, it is difficult to know just where the market actually stands, because of the existence of these occasional surplus lots of Government yarns, and which are sold from 3c. to 5c. on an average below spinners' ideas. For example 10s frame spun cones sold at 48c for one of these surplus stocks, while spinners are asking 50c. and upwards. On Eastern 10s, 52c. is noted; 16s cones sold at 52½c. for February and March, but the spinner only took it at this price because he had the yarn already in stock for prompt shipment. A high grade 30s frame spun sold 70c. for immediate shipment, but the same spinner wants 75c. for March and April delivery. In fact, many spinners will not accept future or spring business on the same basis as nearby delivery. Therefore it is difficult to line prices up. Because of a lack of general trading to establish a market, the prices noted in another column are quoted as nominal market based on what sales are reported, and on spinners' quotations in the absence of any sales.

On weaving yarns, 20s two-ply were offered at 62c. to 63c., but stock lots are reported at 60c.; 30s two-ply warps are said to be scarce, with spinners asking around 75c. with reported offerings out of stock at 72c.; 40s two-ply warps were offered at 85c.; 24s two-ply skeins at 65c.; 20s single warps at 60c.; 20s eastern shuttle cops are noted at 61c.; 8s three-ply dark stock at 50 to 52c., with white stock at 53c. to 55c.

COMBED YARNS QUIET

Combed yarns are not yet showing much activity, with prices depending on the sold-up condition of the spinner. Many state eastern yarns are about on the same basis, or even lower than southern yarns. Mercerized yarns are reported showing occasional improved inquiry in the gray, 40s two-ply are noted at 97c. to $1; 60s two-ply $1.20 to $1.25; single 30s at 85c.; 40s at 95c.; 60s at $1.20.

Phila. Cotton Yarn Trade Notes

George G. Dalgleish, formerly associated with Franklin D'Olier & Co., Philadelphia, cotton yarns, has severed his connection with that company. He will take charge of the New York office of the Erwin Yarn Agency, Inc., 320 Broadway, succeeding W. G. Ellis, who entered the military service last year.

STILL LACK CONFIDENCE

Fair Demand for Tire Yarn and for Export

Boston, Jan. 8.—A further increase in demand for tire cloth yarn, and the development of a fair export demand for carded knitted yarn are among the signs that point toward an early improvement in the cotton yarn trade. The export demand for knitting yarns has actually checked the declining tendency of prices, and represents the first real recovery that has taken place since the Armistice was declared. In other respects, however, the market shows no substantial change, although there are positive indications that the needs of many buyers are becoming more urgent and that they will be obliged to operate with some freedom in the near future.

EFFECT OF STOCK GOVERNMENT YARNS

Buyers are still making use of low prices on stock Government yarns in their efforts to depress values of non-competitive counts and qualities, but this is now having little influence upon spinners. The latter understand that buyers, who use such arguments, are not in urgent need of supplies and they are therefore refraining from efforts to push sales. As soon as consuming needs are sufficiently numerous and large in the aggregate it will be shown that the market has two distinct divisions; one is that which includes all Government yarns that are held in large supply, and the other covers practically all other varieties. Stock of Government yarns may continue depressed in price for a long period, while the balance of the market may develop steady and marked recovery.

PRICES REMAIN UNSETTLED

At the moment it is almost as impossible to quote the market on combed and fine count yarns as it is on stock Government yarns, but in the former case this is due to the small number of sales. Spinners are more generally firm in their asking prices, but are avoiding quoting except in response to what they consider to be a positive demand. A fair volume of sales of 20s combed peeler warps for tire cloth are reported within a range of 80c to 82c, although many spinners ask 5c to 6c more; there has also been a little business on 23s tire cloth warps spun from Sakelarides within a range of $1.15 to $1.20. Little business is reported on fine count weaving yarns and they are nominal in price on a basis of $1.20 to $1.25 for good Eastern combed pulse skeins and with a minimum of $1.15 reported on southern yarn. The market on combed peeler knitting yarns is decidedly slow with most spinners asking around a basis of 70c for 10s, although eastern carded yarns have been sold as low as a basis of 55c for 10s; few spinners, however, have at any time quoted lower than 58c to 60c. Sales of southern yarns for export are reported to have been made around a basis of 50c for 10s cones and the market is now quoted 1c to 2c higher.

YARN SALESMEN MEETING

An Elaborate Gathering Planned for January 17

Final plans are now being made for the celebration of the annual meeting and dinner of the Philadelphia Cotton Yarn Salesmen's Association. Because of the necessity of omiting the annual fall outing at the time of the influenza epidemic, this affair will be planned along unusual and elaborate lines. The entire roof garden of the Hotel Adelphia has been engaged for Friday evening, January 17, to accommodate the members. The annual business meeting will be held at 6 P. M., followed by the

Cordially Solicited:

Correspondence with makers of "quality first" Combed Peeler one and two-end tubes in all numbers up to 60s.

QUALITY YARNS ONLY

Jos. J. De Long
Imported and Domestic
Cotton Yarns
257 Fourth Avenue
New York

GLOBE DYE WORKS CO., Successors to R. Greenwood & Bault
Dyers, Bleachers and Mercerizers of Cotton Warps and Skein Yarns
Also DEALERS in MERCERIZED YARNS
140 Chestnut Street, PHILADELPHIA
Globe Bleach and Dye Works, Kinsey and Worth Sts., Frankford, Pa.

THE JOHN F. TRAINOR COMPANY
291 Broadway, New York
COTTON YARNS FOR EXPORT

O. S. HAWES & BRO.
FALL RIVER, MASS.
COTTON YARNS ALL FORMS AND NUMBERS

STANDARD PROCESSING COMPANY
MERCERIZED YARNS
GASSED YARNS A SPECIALTY
Factory, Chattanooga, Tenn.
Sales Agents:
G. THATCHER W. H. THATCHER
Office, 720 Lafayette Building
PHILADELPHIA, PA.

MONUMENT MILLS, Housatonic, Mass.
HIGH GRADE COTTON YARNS, White, Colors, Bleached
On Beams, Jack Spools, Cones, Skeins, and Chain Warps
FAST-BLACKS & COLORS { For Woolen Mills a specialty } WE SELL DIRECT

The Halliwell Company

Dyers, Bleachers and Mercerizers of Cotton Yarns

Fast Colors A Specialty

High Class Mercerizing in warps Only

A new plant, latest and most modern machinery and equipment, backed by thirty-five years of specialized experience, guarantees service and satisfaction

The Halliwell Company
Pawtucket Rhode Island

DOMESTIC & FOREIGN
REPRESENTATIVE

GUSTAVE A. RUMPF
205 Chestnut Street
Cable Address GUSTAVE
Philadelphia, Pa. U. S. A.

DOMESTIC:—We act as a *CLEARING HOUSE* between mills on *YARNS AND NEEDLES.*

FOREIGN:—This Department has wonderful facilities for assisting Foreign Buyers.

Correspondence Solicited

PROVIDENCE DYE WORKS
PROVIDENCE, R.I.

Dyers of Cotton Yarns in Skeins

Specializing in OLIVE DRAB SHADES for GOVERNMENT WORK and Sulphur Black

YARNS WOUND ON CONES AND TUBES

BOWDITCH DYE WORKS, Inc.
RAW STOCK DYEING

SPECIALIZING IN OLIVE DRAB SHADES FOR GOVERNMENT WORK AND SULPHUR BLACK

PUTNAM, CONNECTICUT

Works at East Putnam Providence Office, 204 Westminster Street

Silk, Cotton, Worsted, Artificial Silk, Linen, and Novelty Yarns.
Twisting, Doubling, Reeling, Winding in every form.
Cops, Cones, Tubes, and Skeins

WINDING?

Telephone Trenton 4308

SCIENTIFIC TEXTILE CO.
MORRISVILLE, BUCKS CO., PA.

Penn Dye & Finishing Co.
Exceptional Facilities for
Fulling and Scouring on Knit Goods; Dyeing and Finishing Cotton, Wool and Fibre Silk Piece Goods

Combination Dyeing of Knit Goods a Specialty

Allentown, Pennsylvania

Mercerizing - Dyeing - Bleaching - Winding
Of the Better Quality
FOR THE KNIT GOODS TRADE
Cotton — Worsted — Mercerized
EDW. B. STEINMETZ CO., INC.
Hancock and Huntingdon Streets Philadelphia, Pa.

THE J. R. MONTGOMERY CO., WINDSOR LOCKS, CONN.
Manufacturers of
MERCERIZED COTTON YARNS Give the high Silk-like luster
In Knit Goods and Woven Fabrics
NOVELTY YARNS Poucle, Bourette and Spirals in Cotton, Wool, Worsted, Mohair and Silk
COTTON WARPS On Beams, Jacks, Spools and Tubes In Fancy Twist, Colors and Printed

H. M. REMINGTON
COTTON YARNS
Representing McCONNEL & Co., LTD., Manchester, England
113 Chestnut Street, Philadelphia

COTTON WARPS
DANA WARP MILLS Westbrook, Maine
Cotton Yarn and Warps, Carded and Combed
WHITE and COLORED SINGLE and PLY SELL DIRECT

RHODE ISLAND PROCESSING CO. INC.
converters of
Cotton Yarns - Mercerizing - Dyeing Bleaching and Winding
Mills at Coventry, R.I. Samples Submitted on Request

MERCERIZING
DYEING and BLEACHING SKEIN YARNS
WINDING CONES TUBES COPS
GERALD COOPER POMFRET ST PROVIDENCE, R.I.

GEORGE BUTTERWORTH & SONS
Cotton Yarns
Philadelphia Pa.

United States Conditioning & Testing Co.
340 Hudson Street New York, N. Y.
220 Ellison Street Paterson, N. J.
Cotton, Wool and Silk Conditioning, Fabric Testing and Chemical Analyses

U. S. Acid Proof Paint
Send for Sample on Tin—Ready to Test
Absolutely proof against the strongest acids and alkalis—even proof against chlorine—air dries in 30 minutes—will stand 350° Fahr. Contains no oil, asphalt, coal tar or pigment.
U. S. VARNISH CO. 41 Park Row, N. Y.
DAWSON & HOPKINS, *Canadian Sales Agents*, McKinnon Building, Toronto, Ontario.

A TAPE BELT FOR UNIVERSAL WINDERS
We have perfected a cotton tape belt for driving Universal Winders. Also one for Camless Winders. We urge all users of these machines to write us for samples. We offer this with our full indorsement, because exhaustive tests have satisfied us of its real merit.
BARBER MFG. CO. LOWELL MASS.
Spinning Tape Specialists

Philadelphia Shipments
consigned to my care are carefully and expeditiously handled on arrival by my large fleet of trucks, in conformance with transportation terminal regulations.
Being in touch with all terminals in this city daily enables me to apply for Shipping Permits with greater likelihood of favorable action.
PETER CAVANAUGH
222 Chestnut Street, Philadelphia, Pa.
Freight Forwarder, Transfer Agent and Bonded Drayman
Established 1878

The Macrodi
FIBRE HEAD WARP SPOOL
After 14 years of the hardest mill use has demonstrated that it is
Durable—Economical
Write for particulars of the added traverse with corresponding increase in yardage—an important feature of this spool.
Prompt Deliveries
Macrodi Fibre Company
Woonsocket, Rhode Island

Yarn Markets—Cont'd

dinner at 7. An attractive entertainment is promised by the committee, which alone will be worth the price of admission. The annual election of officers will be also held on this occasion.

The fact that the fall outing was not held last year, it is expected, will cause an unusually large attendance. Special effort will be made to secure the attendance of all members, as well as nonmembers, in the trade.

In connection with the annual meeting and election of officers for the association, there will also be the organization of a Golf Association. Arrangements will be made for various matches to be held during the year. This will undoubtedly prove to be a very attractive feature as there are quite a number of cotton yarn salesmen in this market who are golf devotees.

INVESTIGATE CONDITIONS

Department of Commerce to Send Trade Commission to Europe

WASHINGTON, D. C., Jan. 6.—The Department of Commerce is planning to send between twenty-five and thirty-five trade commissioners to Europe to make a general trade investigation and to report the commercial situation with reference to trade relations with the United States. It is anticipated these men will leave this country on Feb. 1 or shortly thereafter.

The commissioners will not make an extended stay but will make only a brief survey of some five or six months. They will be sent to France, England, Belgium, Holland, Spain, Italy, the Balkans and Scandinavian countries. Examinations will be held for these trade commissioners, and while most of them will be of a general nature some specific work will also be undertaken. Just what special work will be taken up is not yet definitely decided by the officials of the Department of Commerce.

Americanization Conference

As the result of a conference held last week at the office of A. D. Milliken, agent of the Hamilton Manufacturing Co., Lowell, Mass., the manufacturers of that city attended an industrial Americanization conference at the Y. M. C. A. on Wednesday night of this week. Following a dinner, addresses were delivered by several prominent speakers. The Lowell committee in charge of the conference consisted of Louis A. Olney, of the Lowell Textile School; A. D. Milliken, agent of the Hamilton Manufacturing Co., and Samuel H. Thompson.

Lowell School Trustees Report

In the report of the board of trustees of the Lowell (Mass.) Textile School to the legislature of that State, a request has been made for the suspension of State laws to permit the placing of fire insurance on the buildings and equipment of the institution, and for permission to purchase a plot of land on the east side of the school, that has been held under lease for the five years.

Souvenir

The Universal Winding Co., are sending out to their customers and friends the daily pads for 1919 for placing on their splendid enamel calendar stand which they issued several years ago. This calendar is very practical and an ornament in any business office.

THE HENRIETTA MILLS of CAROLEEN, N. C., have bought from us for many years. They add 3 quarts of oil to a gallon of L. & M. Exterior Paints and 3 quarts of turpentine to our paints for interiors, thus saving "ready-mixed" paint maker's profit.
Purity plus extreme durability and low actual cost must appeal to you.
We have sold Paints "upon honor" for 62 years.
L AND M
Longman & Martinez
Paint Makers
NEW YORK CITY

SOLWAY DYEING & TEXTILE CO.
PAWTUCKET, R. I.
Dyers, Bleachers and Mercerizers of Cotton Yarns, Warps or Skeins
ABSOLUTELY FAST COLORS

NATIONAL PAPER TUBE CO.
Manufacturers of All Kinds of PAPER TUBES
Lena and Armat Sts. Germantown, Phila., Pa.

J. G. BOWDEN & SON
MANUFACTURERS TAPES, BRAIDS, RIBBONS, WEBBINGS
Narrow Fabrics of Every Description
68 ESSEX STREET BOSTON, MASS.

"SLASHER TAPE SPECIALISTS"
Gummed SLASHER TAPE and Slasher Tape Machines
PAPCO PAPER PRODUCTS COMPANY, ATLANTA, GEORGIA

GREGORY & BANKS, Inc. 467 Broadway New York
DEPT. BACON & CO.
COTTON YARNS FOR ALL PURPOSES
Drexel Building, Philadelphia Grosvenor Building, Providence Piedmont Building, Charlotte

SILK MILL SUPPLIES of Every Kind and Description
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO. PATERSON, N. J.
Allentown Reed, Harness and Mill Supply Co., Allentown, Pa.

B & C TRADE MARK
BARBER-COLMAN COMPANY
MAIN OFFICE AND FACTORY ROCKFORD ILL
BOSTON MASS. GREENVILLE S. C.
HAND KNOTTERS AND WARP TYING MACHINES

WEIMAR BROTHERS
Manufacturers of
TAPES, BINDINGS and NARROW FABRICS
2046-48 Amber Street, Philadelphia

THOS. WOLSTENHOLME, SONS & CO., Inc.

Frankford Ave. & Westmoreland St. Philadelphia, Pa. P. O. Station "E"

UNDERWEAR
HOSIERY
SWEATER
WEAVING

YARNS

COLORS
OXFORDS
AND
FANCY MIXES

French and English Spun Worsted
French Spun Worsted Merino

Boston Office: 176 Federal Street

Philadelphia Office: 108 S. Front Street

WM. H. GRUNDY & CO.

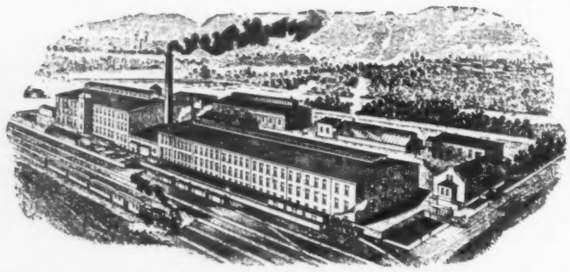
Top Makers and Worsted Spinners

for

Men's Wear, Dress Goods and Knitting Trade both in Grey and Mixtures

---

MERION WORSTED MILLS



Sell Direct

Fine French-Spun Worsted and Worsted Merino Yarns

WHITE NATURAL AND FANCY MIXES IN SINGLE AND PLY FOR KNITTING AND WEAVING

Mill and Office WEST CONSHOHOCKEN, PA.

JAMES LEES & SONS CO.

Manufacturers of

Worsted and Woolen Yarns

for weaving and knitting

also

Minerva Yarns

for Hand knitting and crocheting

Mills and Main Office, Bridgeport, Pa.

New York Office, 220 Fifth Avenue

Chicago Office, 175 West Jackson Boulevard

BOTANY WORSTED MILLS PASSAIC N. J.

FINE FRENCH SPUN WORSTED YARNS
Of Every Description for Knitting and Weaving

Represented by

WALTER D. LARZELERE, 704 Commercial Trust Bldg., Philadelphia, Pa.

The Pitkin-Holdsworth Worsted Co.

PASSAIC, N. J.

Spinners of Worsted Yarns in the Gray for Weaving and Knitting

Represented by

WALTER D. LARZELERE, 704 Commercial Trust Bldg., Philadelphia, Pa.

F. A. STRAUS & CO.

451-453 Fourth Ave., NEW YORK CITY

SPINNERS OF

Worsted Yarns for Weaving and Knitting

Mills, Trenton, N. J.

Thrown and Artificial Silks

Worsted Yarns

PASSAIC WORSTED SPINNING CO
PASSAIC N. J.

Bradford System

JAMES DOAK JR. COMPANY

WORSTED SPINNERS

KENSINGTON PHILADELPHIA

ASHWORTH-ODELL WORSTED CO.

Salamanca, N. Y. Worsted Yarns

Selling Agents PUNCH & PREDMORE, INC., 185 Summer St., Boston, Mass.

FALLS YARN MILLS

FINE WOOLEN AND MERINO YARNS

WOONSOCKET R.I.

Incorporated 1904

Philadelphia Representative
H.R. SHIRLEY
242 Chestnut Street

YARN MARKETS—Continued

WORSTED YARNS STILL SEEKING DEFINITE BASIS

Wool Auctions Regarded as Unsuccessful—Hope for Changed Methods—Trade Still Marking Time

There is still a lack of definite character to the worsted yarn market with no active trading. Yarn prices have yet to assume a basis which buyers feel is definite enough to warrant their figuring prices for future business. There is still more or less disparity noted in quotations, but dealers say they are getting closer together right along now, and they hope that it will not be long before the market can resume active conditions. The wool auctions are still cited as one of the leading causes for the present indefiniteness. The trade generally appears to feel these sales have not as yet succeeded in establishing a stable price for wools or in turn yarns, which can be taken as a basis for their figures for any length of time. It would appear that many manufacturers are disposed to look for further revisions of prices at each subsequent sale, and therefore postpone their buying with the hope a better price will be offered. There seems to be little doubt in the mind of the average yarn factor that the present scheme for the disposal of the Government wools, is not proving much of a success in either distributing these stocks, or establishing confidence in the market.

There are many factors familiar with the textile situation who declare that it would be far better for the Government to maintain unrestricted sales of these wools in larger quantities; that while prices may start at low levels, the desire of all buyers to possess some low-priced wools would lead to a natural and clean competition, which ultimately would put wools on a higher basis no doubt than would be realized by the present method, where buyers for some reason do not seem ready to operate. Attention is also called to the fact by several factors in the trade that certain elements among the wool dealers and clothing trades are apparently using every influence to bear prices for wools. This in turn, it is said, leads naturally to the disposition on the part of buyers of both yarns and goods to hold off in the expectation of much lower prices at further auction sales of these wools. This position has been more or less taken up by some of the trade papers and, it is argued, has been having a wide effect in influencing the buyers generally, and delaying any opportunity for the entire market to adjust itself.

MARKET ONLY WAITS

It is generally felt by the trade that the market only needs confidence to get under way, and it is hoped that some chance will soon be given for the establishment of prices on a definite enough basis to instill the necessary confidence in the minds of buyers. The quotations noted in the adjoining column are taken from prices as quoted on an average basis by representative spinners. In the absence of anything like a generally active trading market, these prices are more or less nominal, but they at least afford the trade an opportunity to size up the situation in concrete form, and from this it is hoped will be worked out the basis on which trading can be started.

Spinners are pursuing a varied course under present conditions. Most of them are reported working on a short-time schedule, either cleaning up work in process, or in several instances are merely working on stock for staple yarns. On woolen yarns little interest has as yet been shown for the civilian trade. Most of the mills are still running out yarns on Government work, and prices on new business are held in abeyance awaiting the adjustments on yarns for Government orders. Thus far so little interest is being displayed on short mule spinning wools, that no definite basic figures have been reached on yarns. It is expected, however, that within the next week or two quotations will be offered on these yarns.

KNITTERS BUY SPARINGLY

Knitters are showing no concerted buying tendency. What interest is shown is usually to fill in for nearby delivery, or on a hand-to-mouth basis. Future business is not being considered now as buyers here are also hoping for a lower level. Therefore sales are scattered and usually of small size, about the level noted in another column. There is a certain demand, however, reported on French single yarns for the jersey cloth, which as noted last week apparently has become a staple fabric.

QUOTATIONS

WORSTED YARNS

Prices nominal.

BRADFORD SYSTEM

2-12s to 2-16s low common	1 80	— 1 85
2-20s to 2-24s low ¼	1 82½	— 1 87½
2-20s to 2-26s ¼ blood	1 85	— 1 90
2-26s to 2-30s ¼ blood	1 87½	— 1 92½
2-30s to 2-32 ¼ blood S. A.	1 90	— 1 95
2-32s ¼ blood	2 10	— 2 20
2-20s ⅜ blood	2 22½	— 2 25
2-26s ⅜ blood	2 27½	— 2 30
2-32s ⅜ blood	2 32½	— 2 37½
2-36s ⅜ blood	2 35	— 2 40
2-32s ½ blood	2 65	— 2 75
2-40s ½ blood short wool	2 70	— 2 80
2-40s ½ blood good staple	2 80	— 2 90
2-50s high ½ blood	3 00	— 3 10
2-50s fine	3 15	— 3 25
2-40s Australian	Nominal	
2-50s Australian, 70s quality	Nominal	
2-60s Australian, 70s quality	Nominal	

FRENCH SPUN

1-20s quarter	2 20	— 2 25
1-20s high quarter	2 30	— 2 40
1-20s ⅝ blood	2 40	— 2 50
1-30s ⅝ blood	2 45	— 2 55
1-30s ½ blood	2 75	— 2 80
1-40s ½ blood	2 90	— 3 00
1-50s	3 05	— 3 20
1-40s Australian	Nominal	
1-50s Australian	Nominal	
1-60s fine Australian	Nominal	
1-70s fine Australian	Nominal	

KNITTING YARNS IN OIL, BRADFORD SYSTEM

Dyed Prices nominal

2-5s to 2-10s, ¼ blood	2 12½	— 2 15
2-11s to 2-20s, ¼ blood		— 2 15
2-20s to 2-30s, ¼ blood	2 15	— 2 22½
2-16s to 2-20s, ⅜ blood		— 2 35
2-18s to 2-24s, ½ blood	2 35	— 2 38
2-26s to 2-30s, ½ blood	2 60	— 2 62½

WORSTED YARNS QUIET

Belief in Lower Wool Prices Prevails—Some Nominal Yarn Figures

BOSTON, Jan. 8.—Spinners were not very active participants in recent Government auctions, but where prices were attractive they took a chance. They are, as a whole, endeavoring to discount the future which holds, they believe, lower wool prices. This being so, there is no disposition to load up with wool of any grade. Such yarn prices as are obtainable are largely nominal, and rather lower than would seem to be justified by recent wool purchases. Thus for 2-40s the price of $2.50 is named, and some dealers believe that if a good sized con-

Pocasset Worsted Company, Inc.

Worsted Yarns

OFFICE

10 High St. Cor. Summer - - Boston

WORSTED YARNS

WM. H. RICHARDSON

Selling Agent

322 Chestnut Street Philadelphia

Midland Wool Combing Co., Inc.

COMMISSION COMBERS

Salamanca, N.Y.

WORSTED AND MERINO

FRENCH SPUN YARNS

FOR KNITTING AND WEAVING

Manufactured by

JULES DESURMONT WORSTED CO.

WOONSOCKET, R.I.

PHILADELPHIA PROVIDENCE BOSTON

THOMAS H. BALL

SELLING AGENT

NEW YORK MILWAUKEE CLEVELAND

FRENCH SYSTEM BRADFORD SYSTEM

Worsted and Woolen and Mohair

YARNS

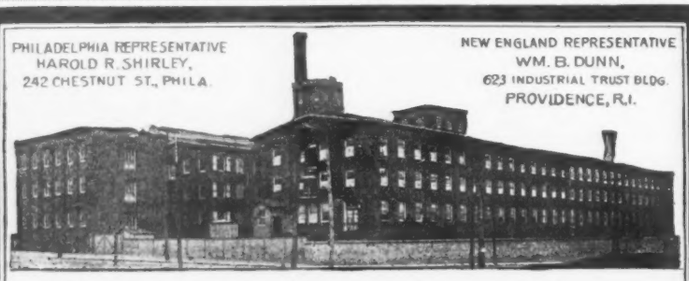
Weaving and Knitting

WALTER McCOOK

204-206 N. 4th Street - PHILADELPHIA

PHILADELPHIA REPRESENTATIVE
HAROLD R. SHIRLEY,
242 CHESTNUT ST., PHILA.

NEW ENGLAND REPRESENTATIVE
WM. B. DUNN,
623 INDUSTRIAL TRUST BLDG.
PROVIDENCE, R.I.



HIGHLAND WORSTED MILLS

MANUFACTURERS OF

AUSTRALIAN AND DOMESTIC TOPS AND WORSTED YARNS FOR MENS WEAR AND DRESS GOODS

— CAMDEN, N.J. —

PUNCH & PREDMORE
INCORPORATED

TOPS YARNS NOILS

WOOLEN — WORSTED — MOHAIR

185 SUMMER ST. 308 CHESTNUT ST.

BOSTON — PHILADELPHIA.

MOHAIR WORSTED WOOLEN
MERINO AND SPUN SILK

YARNS

OF EVERY DESCRIPTION

PERCY A. LEGGE, PHILADELPHIA BOSTON

THE QUAKER MILLS

Manufacturers of CARPETS, RUGS *and* BED SPREADS

WAYNE AVENUE AND BERKLEY STREET, PHILADELPHIA, PA.

NEW YORK OFFICE, 43 LEONARD STREET

Yarn Markets—Cont'd

tract were forthcoming, it could be negotiated on this basis. In knitting yarns the following figures are being considered as a probable basis for business: single 30s domestic half blood $2.65, Australian $2.80, single 40s $2.75, single 60s $3.00. Two-ply 24s, low quarter blood, $2.00.

Sales, however, are far and few between. Quite a little sampling is going on, especially among underwear manufacturers who have been in recent months entirely out of civilian business. Small lots of single 60s have been sold for this purpose, with nominal prices affixed. Adjustation is still going on at the mills, with more or less success and not perhaps a great deal of satisfaction. Two-ply 6½ light oxfords of which there is a considerable accumulation, can, it is said, be utilized in the manufacture of lumbermen's socks.

TOPS HARDENING

Top Makers Bought at Late Auction—Noils on Firm Low Basis

BOSTON, Jan. 8.—The top market is feeling its way to a better and stabler condition. Top makers bought at late Government auction 60-64s Australian, fine half blood domestic, and high ⅜s wool, all at prices that would enable them to meet provisional figures indicated by spinners. As is natural, an attempt is being made to anticipate the future by discounting lower wool prices, which are apparently hoped for, if not confidently expected, by mill interests. Nominal figures for tops based on wools recently bought are as follows: 64s and fine $2.20 to $2.30; 60s and half blood $2.00 to $2.10; high three-eighths blood $1.75 to $1.80; low three-eighths blood $1.65 to $1.70.

The domestic noil market, while very inactive, has, so far as prices are concerned, discounted lower wool values than any yet obtained. It occupies a very anomalous condition when compared with the British market for noils. A comparison with figures at which the British Government is issuing noils for civilian purposes shows that average 44s here are 15 per cent. lower, and fine noils 24 per cent. below those obtained in England. A keen English demand for noils is cabled, and the manufacturers there who apparently are getting quite busy, are willing to pay good prices for the commodities they need. The disparity between American and English prices, if at all permanent, and providing shipping space can be secured at a reasonable rate, will allow the export of noils. Some dealers in this market are already pursuing active inquiry in this direction.

National Tailors to Meet

The tenth annual convention of the National Association of Merchant Tailors of America will be held Jan. 28, 29, 30 and 31, at the Breakers Hotel, Atlantic City. "Woolen Conditions for the Coming Year" will be the subject of an important address by an expert who has not yet been named. The Merchant Tailors' Society of New York City is host for the opening reception. Numerous practical topics for cutters and tailors are listed on the program, and the garment exhibit in connection with the meeting will be opened Tuesday afternoon.

WOOLEN AND MERINO YARNS
MARK D. RING'S SON & CO.
69TH ST. & HAVERFORD AVE. PHILADELPHIA

FOR WEAVING AND KNITTING

FRANKLIN YARN MILLS

J. Randall & Bro.
INCORPORATED

WOOLEN *and* MERINO YARNS

Germantown Philadelphia

Wool and Merino Yarns
KNITTING WEAVING

Founded 1864

JONATHAN RING & SON, Inc.
PHILADELPHIA

Walter W. Hodgson
Card Stamping and Repeating
FOR ALL TEXTILE FABRICS
Also Repeating for Throw Overs for Fine and French Index
315 West Lehigh Avenue - Philadelphia

AMSTERDAM YARN MILLS
(Incorporated)
AMSTERDAM, N. Y.
Commission Spinning
WOOL, SILK and MERINO

Star Worsted Company
YARNS
FITCHBURG, MASS.

Woolen and Merino
YARNS
Eaton Rapids Woolen Mills
Eaton Rapids, Michigan

JOS. M. ADAMS COMPANY
Manayunk, Philadelphia, Pa.
Spinners of
WORSTED YARNS
for Weavers and Knitters
and Woolen Carpet Yarns

A. P. Villa & Bros.

NEW YORK

95 MADISON AVENUE

Yokohama Canton Shanghai
Milan Turin Lyons

Raw, Thrown

AND

Dyed Silks

Silk on Quills or Beams
Hosiery Silk on Cones

Telephone 10080 Madison Sq.
Mills: Passaic, N. J.

WILLIAM RYLE & CO.
Newton Mills
225 Fourth Ave. New York

Thrown and Spun Silk Yarns

for

Silk, Woolen, Worsted, Cotton and Knitting Mills

MACUNGIE SILK COMPANY
Macungie, Pa.

Bindings and Ribbons

For binding Cotton and Woolen Bed Blankets. Go-Cart Covers, Kimonas, Bath Robes, etc.
Special Colors or Shades made to order

Packing cases marked with one of the 24 colors of

DIXON'S CRAYONS

will enable you to distinguish the color of the fabric within. Sample and folder No. 118-X showing colors sent upon request.

Made in Jersey City, N. J., by the JOSEPH DIXON CRUCIBLE CO.
Established 1827

THE "MURDOCK"

Keep your spindles fully equipped with the

Murdock Bobbin Holders

in the perfection of your goods.

Murdock & Geb Co., FRANKLIN MASS.

Yarn Markets—Cont'd

SPUN SILK DEVELOPING

Buyers Showing Increased Desire to Operate

An increased desire of manufacturers to secure stocks of spun silks is evident from the increased inquiry of the week. Apparently mills have reached a position where they are sufficiently certain of the future and are desirous of covering their needs. No small part of the inquiry has sought stocks ready for prompt delivery, but dealers are unable to accept proffered business of that character. It is believed, despite the increased inquiry, that manufacturers will operate on a basis of near needs during the period of readjusting the spun silk market from a war to a peace basis. Prices as yet have not reached a stable basis, and quotations mean little in reflecting the market.

Improved conditions are evident in artificial silk, and producers are able to get an increased output. The majority of artificial silk producers, however, have so much deferred business in hand that they are able to care for but a small proportion of the new business being offered them. Prices remain no more than nominal.

Nominal prices on spun silk:

60-2	7.35
50-2	7.15
40-2	7.05
30-2	6.90
20-2	6.80
10-2	6.70

OBITUARY

Edward Reader

Edward Reader, long and prominently known in the textile industry, died in Malden, Mass., Sunday evening, Jan. 4, in his 75th year. As a boy he attended the Lowell, Mass., public schools, later entering the employ of Middlesex Woolen Mills, and afterward that of the Hamilton Mills. In 1864 he came to Boston and became associated with Timothy Remick, cotton and wool merchant. In 1897 he became associated with L. B. Harding & Co., woolen commission merchants. In 1891-92 Mr. Reader served as councilman for his ward in Malden, he also belonged to the Putnam Lodge of Masons, in Cambridge. He is survived by his widow and one daughter.

Albert O. Davidson

Albert O. Davidson, who was for forty years the general manager of the Aetna Mills, Watertown, Mass., died last week in Lowell in his 79th year. Mr. Davidson was a Civil War veteran and brigadier general on the staff of Governor Greenhalge. He was a member of the Yorick Club of Lowell, of the Point Shirley Club, a life member of the Wild Goose Club of North Pittsfield, Me., and the only surviving charter member of Kilwinning Lodge of Masons of Lowell. He is survived by his widow.

Clarence A. Cook

Clarence A. Cook, treasurer of the Pairpoint Corp., New Bedford, Mass., died at his home in that city on January 1. Besides his interest in the Pairpoint Corp., he was president of the New Bedford-Taunton Copper Co., vice-president of the New Bedford Institution for Savings, and a director in the City Manufacturing Co., Union Street Railway Co., New Bedford Gas Co. and Edison Light Co. He was a member of several prominent clubs in Boston and on Cape Cod. He is survived by his widow and one daughter.

We Buy Yarns { **Wool** **Worsted** **Cotton** **Silk**

Any condition, for cash. Submit samples

JOHN ARMITAGE & SON
58, 60 and 62 N. Fourth Street Philadelphia

THE YEWDALL & JONES CO.

Manufacturers of

Worsted Yarns

In the gray and in all colors; also fancy mixtures, and double and twist

PHILADELPHIA, PA.

WILLIAM WHITMAN COMPANY, INC.

YARNS

For Weaving, Knitting, Threads and Specialties

BOSTON NEW YORK PHILADELPHIA CHICAGO

BOSTON TEL. MAIN 4417 CLINTON TEL. 263

NEW ENGLAND WOOLEN YARN COMPANY
Clinton, Mass.

Manufacturers of

WOOLEN YARN FOR THE WEAVING AND KNITTING TRADE

CAPACITY 20,000 lbs. per week.
QUALITY from quarter blood to fine Australian.
COLOR white, solid, & mixes.
SINGLE OR DOUBLE AND TWIST
SIZE 1 run to 5 run = 5 to 30 cut.
DELIVERY tubes, bobbins, skeins, jack-spools or cones.
Custom work or stock furnished by us.
SHIPPING F. O. B. Clinton, Massachusetts
Your valued orders are solicited

Boston Office WALTER F. SLADE, Agent 60 State Street

MINDLIN & ROSENMAN Importers and Manufacturers of

Artificial Silk, Mercerized and Cotton Yarns
Raw, Thrown and Dyed Silk for the Knitting Trade

Silk on Spools, Cones, Tubes and Quills. *Hosiery Silks a Specialty*

105-107 East 29th St., near 4th Ave., New York
Mills and Dye Works, Long Island City

SAUQUOIT SILK MFG. CO. INSULATING AND BRAIDING SILKS
ORGANZINE, TRAM AND HOSIERY SILKS

Fast Dye Organzines for Woolen Manufacturers a Specialty

Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown.
Chicago Office, 206 So. Market St. Boston Representatives, Stelle & Sherman, 52 Chauncey St., Boston

A. H. Y. COLOR & CHEMICAL CO., Inc.

Importers and Manufacturers

OFFICE—155 North Second Street, Philadelphia, Pa.

Colors which have made our name prominent on both sides of the Atlantic.

ACID GREEN CONCENTRATED
ACID GREEN H-100
ACID BLUE CONCENTRATED
ACID BLUE BLACK CONCENTRATED
ACID BLACK B. R.
SOLUBLE BLUE
VICTORIA GREEN 95
DIRECT YELLOW H-1
DIRECT BORDEAUX H-1
AZO EOSINE AND AZO RUBINE
DIRECT BLUE H-2
DIRECT RED 85
DIRECT FAST PINK H-IX
CONGO RED
METANIL YELLOW

WILL BE PLEASED TO RECEIVE YOUR INQUIRIES

SIZOL
TRADE-MARK
CHEMICALLY CORRECT

Products

FOR

SIZING and FINISHING
SOAPS and SOFTENERS

Seydel Manufacturing Co.

Manufacturers of

FUR DYES, BENZOATES and INTERMEDIATES

Forrest Street — Jersey City, N. J.

MASON & COMPANY
119-121 North Front St., Philadelphia

DYE STUFFS for all purposes

Laboratory at your command.
Matching shades our specialty.
Send in your dyeing problems.

MASON & CO.

INDIGOTINE

Indigo Extract
Indigo Paste
Indigo Carmine

AURAMINE
METHYLENE BLUE

Manufactured by

ATLAS COLOR WORKS, INC.

Office 322 Ninth Street — Brooklyn, N. Y.

JAMES W. DAVIS

Chemicals and Dyestuffs

Imported and Domestic

207 Walnut Place — Philadelphia, Pa.

Soapalite

SAVES SOAP
ECONOMICAL
EFFECTIVE
HARMLESS

Get Booklet Now

Sole Manufacturers
THE ELECTRIC SMELTING & ALUMINUM CO.

ALIZARINE RED

PASTE 20%

MADE BY MITSUI MINING CO.

MITSUI & CO.
Exporters and Importers
CHEM. DEPT.

65 Broadway, New York
Telephone—Rector 7110

DYESTUFFS AND CHEMICALS

QUOTATIONS

Prices quoted below were corrected this week on the New York market, and we believe them to be accurate, though largely nominal.

MISCELLANEOUS CHEMICALS			
Acetone	25½	—	—
Alumina-Sulphate com.	2	—	3½
Alum, lump	4½	—	7
Ground	4½	—	6½
Ammoniac, Sal, white, gran.	23	—	25
Antimony (oxide)	13½	—	15
Argols	11	—	11½
Arsenic—white	9	—	11
Red	45	—	55
Barium chloride, ton	65	—	70
Bleaching Powder, Domestic	2½	—	3½
Blue Vitriol	9½	—	9¾
Do., in carload lots	9¼	—	9½
Chrome—Acetate, 20 deg.	10	—	11
Copperas	2	—	2½
Epsom salt, 100 lb.	3 27½	—	3 50
Formaldehyde	—	—	16½
Glauber Salts, 100 lbs.	2 00	—	2 50
Glycerine (C. P.) bbls., dms. extra	25	—	26
Cans	27	—	28
Distilled, yellow, crude	25½	—	26
Iron—liquor, per gal.	—	—	42
Nitrate, true	9	—	9¼
Com.	2	—	3¼
Lead—Brown acetate	15½	—	16½
White (crystals)	17	—	17½
Magnesium chloride	—	—	—
Potash-Bichromate	39	—	41
Chlorate crystals	39	—	41
Permanganate	1 35	—	1 60
Prussiate red	2 30	—	2 40
Yellow	80	—	85
Soda acetate	20	—	25
Bichromate	17	—	18
Bisulphite, 35 degs., 100 lbs	6	—	8
Powdered	6	—	7
Chlorate	18	—	20
Hyposulphite, in bbls.	2 60	—	3 60
Nitrate, tech., 100 lbs.	5	—	5¼
Nitrite	28	—	30
Phosphate (Commercial)	4	—	4½
Prussiate, yellow	40	—	42
Sulphide, 30% crystals	—	—	—
Tartar emetic, tech., powdered	65	—	65½
Do., tech., crystals	63	—	64
U. S. P.	73	—	73¼
Cream of tartar—Crystals	64	—	78
Powdered	64½	—	78½
Tin—Muriate, 54 degs.	—	—	33
36 degs.	—	—	23½
Crystals	65	—	70
Bichloride, 50 degs.	28	—	29
Oxide, bbls.	—	—	—
Zinc chloride	14	—	15½
Zinc dust	15	—	16
ACIDS			
Acetic, 28%, per 100 lb.	4 91	—	5 16
Citric, crystals	1 25	—	1 25½
Formic, 75%	36	—	38
Lactic, 22%	6½	—	7½
Muriatic, 18 @ 22 deg., per 100 lb.	1 90	—	2 80
Nitric, according to strength.	6 60	—	9 15
Oxalic, dom.	37	—	38
Norwegian	41	—	46
Sulphuric, 66 degs., per ton	25 00	—	—
Tannic, U. S. P.	1 40	—	1 50
Technical	65	—	80
Tartaric crystals	81	—	86
Powdered	81	—	86
ALKALIES			
Ammonia, aqua, 26 deg.	8¼	—	8½
Borax, refined crystals and powdered, bbls.	7½	—	8¾
Potash, carbonate, 80-85%.	28	—	40
Caustic, 70-75%	55	—	66
Soda Ash, 58% light	2¼	—	2½
Bicarbonate	3¼	—	3¾
Caustic, 76%	4	—	4¼
Sal, 100 lb.	1 60	—	2 10
NATURAL DYES AND TANNINS			
Archil extract conc.	25	—	30
Camwood, chips	18	—	20
Cutch	20	—	22
Fustic: Solid	26	—	31
Liquid	15	—	16
Gambier (in store)	21	—	23
(To arrive)	—	—	—
No. 2 cube (to arrive)	—	—	—
No. 1 cube (to arrive)	—	—	—
Hematine paste	20¼	—	22¼
Crystals	23	—	25
Hypernic chipped	9	—	10
Indigo—Bengal	3 25	—	3 56
Guatemala	2 25	—	2 75
Madras	80	—	1 00
Kurpah	2 25	—	2 75
Indigo extract	26	—	30
Logwood chips	3	—	5
Extract, liquid, 51 degs.	15	—	18
Crystals	25	—	36
Nutgalls, blue Aleppo	—	—	—
Chinese	30	—	35
Quercitron, per ton	13 00	—14	00
Liquid	7	—	7½
Sumac, basis 28%, ton	98 00	—100	00
Extract	—	—	—
DYESTUFF INTERMEDIATES			
Alpha Naphthylamine	55	—	60
Aniline oil	28	—	30
Salt	40	—	42
Beta Naphthol, sublimed	75	—	80
Dimethylaniline	75	—	80
Metaphenylene Diamine	1 85	—	1 95
Paranitraniline	1 70	—	1 90
EARTHS, PIGMENTS AND ABRASIVES			
Barytes, domestic, prime white, ton	30 00	—35	00
China Clay, domestic, ton.	15 00	—22	50
Chrome Yellow	30	—	32
Fuller's Earth, powd., 100 lbs.	1 00	—	1 50
Lithophone	7½	—	7¾
Silex	22 00	—40	00
Ultramarine Blue	14	—	50
White Lead (basic sulphate)	9	—	9½
Zinc oxide, Amer. process	10	—	10½
OILS AND SOAPS			
Lard oil, prime burning, gal.	2 20	—	2 25
Extra No. 1, gal.	1 45	—	1 50
No. 1, gal.	1 40	—	1 42
Olive oil, denatured, gal.	4 00	—	4 25
Olive oil, Foots, gal.	45	—	—
Red oil, saponified, lb.	17	—	17½
Soap, green olive, imp.	—	—	—
Domestic olive	—	—	—
Chip	—	—	—
Soluble oil, 50% castor, lb.	12	—	14
ADHESIVES AND SIZING MATERIALS			
Albumen, Blood	80	—	90
Egg	1 20	—	1 25
Casein	20	—	—
Dextrine—Potato (DoPom.)	20	—	20½
Do., corn, carload lots, bags	8	—	8½
Glue, Fish, per gal.	1 00	—	1 80
Gum Arabic, amber sorts	29	—	30
Gum, Br., carload lots, bags	—	—	7 25
Do., bbls.	—	—	7 64
Sago flour, spot	9½	—	10
Starch, corn, pearl, bags, carload	5	—	5½
Potato	11	—	12½
Rice	—	—	—
Wheat	10½	—	—
Tapioca flour	15	—	15½

NO DYE CHANGE

Trading of Nominal Volume with Prices Holding Firm

No real confidence is shown by users of dyestuffs and chemicals in current price levels, and as a result buying continues close to a parity of actual needs of consumers. There is considerable inquiry and buyers are keeping in constant touch with the market, but most of their interest has been confined to attempts to find weak spots.

Generally prices continue to hold firm, and dealers are turning deaf ears to demands for substantially lower levels. There has been a little softening evident in spots, but the recessions have been comparatively small and not large enough in volume to have a depressive effect upon the market as a whole.

With the clearing of conditions in the textile industry and mills rapidly approaching the time when they will be ready to go ahead with operations, it is believed that buying of colors will be materially stimulated. No one expected to do an active business much before the middle of this month, but previous opinions were to the effect that once operations started they would go ahead in a comparatively active manner.

COAL-TARS UNCHANGED

Coal-tar dyes and intermediates are without important change from the position they have been in for the last several weeks. Buyers are operating in a hand-to-mouth manner and most inquiries are seeking lower levels. With but few exceptions, prices are maintaining their previous firmness, and while it is more or less general opinion that levels are to be lower it is thought among sellers that recessions will be gradual rather than of a slump character.

Trading in natural dyes remains restricted to a considerable extent by the scarcity of raw materials. Import restrictions have been removed in great part but the scarcity of shipping space continues to act as an effective obstacle to the bringing of woods. Most of the recent arrivals have gone into direct consumption, and the market is hardly less bare than it has been for some time past. Prices thus far have retained the greater part of their previous firmness, but in a few

ANTHRAQUINONE 99%
Also 20% PASTE and higher
THE GLOBE CHEMICAL CO., INC.
168 Broadway, Jersey City, N. J.
Office 14-16 Hopkins St., Brooklyn, N. Y.

THE MAKENWORTH COMPANY
GREENSBORO, N. C.
Sulphur, Basic and Direct Dyes, Auramine O. Concentrated and Chemicals
Most Excellent Values in
SULPHUR GREENS, YELLOW and CORINTH
Direct Colors of Highest Standards

EUGENE VELLNER
MANUFACTURER AND IMPORTER
ANILINE COLORS, DYESTUFFS AND CHEMICALS
SOFTENERS AND SOLUBLE OILS
271 SOUTH FIFTH STREET, PHILADELPHIA

B. BERNARD
105 Chambers Street, New York
ANILINE COLORS AND DYESTUFFS
Telephone Call: Worth 458-735

C. BISCHOFF & CO., Inc.
451-453 WASHINGTON STREET NEW YORK, N. Y.
Aniline Colors, Dyestuffs and Chemicals
PHILADELPHIA BOSTON PROVIDENCE

ONYX OIL and CHEMICAL CO.
OILS, CHEMICALS AND EXTRACTS OF EVERY DESCRIPTION FOR
DYERS AND FINISHERS
Office and Works - - - - Jersey City, N. J.

STEIN, HALL & CO., Inc.
Successors to
STEIN, HIRSH & CO.
61 Broadway New York
Starch, Dextrine, Gum, Tapioca, Sago
Philadelphia Providence Boston

ANILINE COLORS E. M. THAYER & CO. EXTRACTS CHEMICALS
Importers and Manufacturers
36 Purchase St. and 375-377 Atlantic Ave., Boston, Mass.

UCPC

UNITED CHEMICAL PRODUCTS CORPORATION

Importers, Exporters and Manufacturers

YORK AND COLGATE STS. JERSEY CITY, N. J.

ANILINE COLORS

Acid, Direct, Basic, Chrome and Sulphur

SUMAC EXTRACT

Logwood, Hematine, Gambier, Fustic, Etc.

CHEMICALS

Softeners, Sizes, Finishes, Textile Oils and Soaps

Inquiries Solicited

Southern Representative: R. T. GRANT, 198 W. Peachtree St., Atlanta, Ga.

Bannon's Bleacher's Blue

W. H. Bannon & Co.

506 Industrial Trust Bldg.

Providence, R. I.

Bell phone Lombard 2500-01

F. SWIFT GIBSON

Drexel Building

PHILADELPHIA PENNA.

CHEMICALS

Acids Soda Ash Caustic Soda

Bichromates Bleach Alums

and full line of Heavy Chemicals for the Textile Trades

Spot or Contract

DIASTAFOR

The Oldest and Best **PRODUCT**

for Sizing, Finishing, Stripping and the Making of Pastes.

Manufactured and sold in the United States and Canada only by

THE AMERICAN DIAMALT COMPANY

NEW YORK

1182 Broadway

Factory and Laboratory, CINCINNATI, OHIO

We are Manufacturers of

Sulphur Black Sulphur Khaki

Sulphur Brown

Malachite Green Auramine

Also

PERMANGANATE OF POTASH

U. S. P. and Tech.

Samples and prices submitted upon request

WILLIAMSBURG CHEMICAL CO., INC.

230 Morgan Avenue Brooklyn, N. Y.

Branch Offices: New York, N. Y., Providence, R. I., Philadelphia, Pa., Montreal, Canada, Greensboro, N. C.

ESTABLISHED 1882

WALTER F. SYKES & COMPANY

IMPORTERS OF

FRENCH ANILINE COLORS AND DYEWOOD EXTRACTS

176 William Street, NEW YORK

PHILADELPHIA Phone Beekman 581 BOSTON

United States Agents

ST. DENIS DYESTUFF & CHEMICAL CO.

(Poirrier)

Works—St. Denis (Seine), France Works—Besseges, France

English Crown WOOL SOAP

"Superior Quality"

BEST FOR WOOL SCOURING, WORSTED FINISHING AND FULLING

Original Bradford Soap Works

PROVIDENCE R. I.

SCOUR WOOL, WORSTEDS and SILK

WITH

KYOLYNE

ALL GRADES OF TEXTILE SOAPS

New England Distributors of

MILLENE ALKALI

F. KENNEY MFG. CO., BOSTON, MASS.

Textile Manufacturers

Should be interested in DIAX for the following reasons:

FOR BLEACHING
Purer whites are obtained, less tendency to weaken fibres, saving of time and chemicals.

FOR DYEING
More level dyeings are obtained with economy of dyestuffs. Thorough degumming of previously dyed and finished goods are easily and cheaply performed.

FOR MERCERIZING
Has increased affinity of the cloth for the caustic liquor, gives better lustre, the mercerizing lye kept clearer and lasts longer.

FOR PRINTING
It is especially useful in making adhesive sizes and finishes, and less expensive, and is devoid of color and easily removable.

FOR FINISHING
Thin fluid mixings are produced which penetrate the cloth better, giving superior results in the handle and feel of the cloth, and economy in the use of starch and dextrine.

Further information gladly given. Write

Malt-Diastase Company
79 Wall St., New York City
Laboratories: Brooklyn, N. Y.

DYE TUBS and VATS

All Kinds and Sizes For All Purposes

When in need of tanks, tubs or vats please remember

that we carry ten million feet or more of cypress *in stock* seasoning, so can construct and ship *promptly*.

Cypress is our specialty because of its natural qualities.

We control cypress swamps and saw-mills in Florida where we make the lumber with the proper thickness and sizes for use in our factory at Neponset.

Send for Illustrated Catalog.

THE A. T. STEARNS LUMBER CO.
200 Taylor St.
NEPONSET (Boston), MASS.

Manual of Dyeing

(Fourth Edition, Revised)
by Knecht, Rawson & Lowenthal

In 2 Vols. $15.00

This is the standard reference work on modern dyeing practice. The accepted authority on both sides the water. It is exhaustive in that it deals with every class of textile fibers, yarns, fabrics and the application of all colors in general use by every practical method.

Sent postpaid on receipt of price

BRAGDON, LORD & NAGLE CO.
3 Fourth Avenue, New York

The Berry Wheel
is the most effective agent on the market for drying and for eliminating steam and other impurities from the air.

A. HUN BERRY FAN CO. 29 W. First St. BOSTON

instances can be bought at slightly lower levels.

In chemicals there is no apparent change. Awaiting for price reductions, that have as yet failed to materialize in an appreciable manner, buyers are operating only as they find themselves in positive need of stocks.

Dye and Chemical Notes

The Nichols Copper Co. on Monday changed its quotation on bluestone to $8.85 per 100 pounds, in car lots, for large crystals, 99 per cent. pure.

Coal tar distillates, except synthetic indigo, are on a list of commodities which have been removed from the restricted import lists by the War Trade Board and for which licenses will be issued upon proper application.

The Jordan Coal Tar Products Co., Inc., has opened offices at 13 Cliff Street for the handling of coal tar products and chemicals. James A. Dowd, vice-president of the new company and formerly associated with Ralph L. Fuller & Co., is in charge of the office.

The Butterworth-Judsen Corp. has opened a branch office in Boston, in the National Shawmut Bank Building, in charge of D. N. Barker.

Charles F. Kelly, for the last three years associated with the heavy chemical department of Ralph L. Fuller & Co., resigned, and on the first of this month became sales manager for the Monsauto Chemical Co. at their St. Louis office.

Notice of authorization has been filed by the Thymos Chemical Co., Newark, N. J., to operate at 50 Spring street for the production of chemicals and allied products. Eugene Theimer heads the company.

The American Benzoate Corp., Newark, N. J., has been incorporated with a capital of $90,000 to engage in the manufacture of chemicals. Cornelius A. Cole, Paul E. Britsch and W. E. Schiels, Jr., are the incorporators.

The tar distillation plant of Bryan I. O'Neill, near Third and Union streets, Allentown, Pa., about 30 x 60 ft., was completely destroyed by fire on Dec. 31, caused by an explosion.

The Gulf Reduction Co., Pensacola, Fla., has been incorporated with a capital of $200,000 to operate a plant for the manufacture of dyestuffs, etc. C. G. Rives, Jr., is president; L. Lavedan, Camp Walton, Fla., is vice-president; William Fisher, Pensacola, is secretary-treasurer.

Operations have recently been inaugurated by the Rector Chemical Co. in its new plant at 593-97 Irving avenue, Brooklyn, N. Y.

The Russel Chemical Co., Philadelphia, Pa., has been incorporated with a capital of $5,000 to engage in the manufacture of chemicals. L. S. and C. A. Sorber and F. E. Curtis, Philadelphia, are the incorporators.

The E. M. Sergeant Co., chemicals, have moved from 95 Madison avenue to 15 East Twenty-sixth street, New York.

Calendars

An attractive bronze paper knife is the reminder that William G. Wright, worsted yarn merchant of Boston, is sending out to his customers. It bears the motto adopted by Mr. Wright several years ago: "Write to Wright."

Lockwood, Greene & Co., of Boston, the well known construction engineers, send out an attractive calendar, on each page of which there is a picture of some large mill building in the construction of which they have had considerable to do.

PHONE LOMBARD 546 CABLE ADDRESS "BENZIDINE"

The Warren Aniline Co.

Drexel Building

Philadelphia, Pa.

WE are making deliveries of the following *Direct Colors* in excellent types:

ORANGE, YELLOW, PINK, SKY BLUE, GREEN, BROWN, VIOLET, KHAKI

We also carry a stock which includes many of the old type standards of *Acid Colors* with which you are familiar.

Twenty years' experience in Anilines affords our customers a

BED-ROCK FOUNDATION FOR **SERVICE**

HOLLIDAY-KEMP CO., Inc.

We manufacture Dyestuffs for Cotton and Wool that Meet United States Government Requirements, Army and Navy.

MANUFACTURERS OF

ANILINE COLORS DYESTUFFS, ETC.

FOR ALL PURPOSES

WORKS:
Woodside, L. I.

OFFICES
90 William Street, NEW YORK CITY
151 North Front Street, PHILADELPHIA
114 State Street, BOSTON

TRADE MARK

BACO

REGISTERED

DYES

ALWAYS THE SAME

DIRECT, ACID, BASIC, CHROME AND SULPHUR

BACHMEIER & CO., Inc.
438 W. 37th STREET, NEW YORK, N. Y.
261 Franklin Street, Boston, Mass. 1524 Chestnut Street, Philadelphia, Pa.

"The Old Reliable"—Back Again

Manufacturers bought all the

EMPIRE BALING PRESSES

we had. We were sold up far in advance. We couldn't accept additional orders, but they kept coming in; so we did the next best thing. We increased our manufacturing facilities and now we are again able to make

IMMEDIATE SHIPMENTS

of both the all-steel and wood models, hand and power operated, for baling clothing, blankets, knit goods, cotton, wool, rags, waste paper, hair, etc.

Send for Catalog and Prices

The W. L. LOESER COMPANY

Manufacturers of the Empire Press — 30 Wasson St.,
Distributors of Wire Bale Ties — Buffalo, N. Y.

B. D. KAPLAN & CO.

7 Vestry Street, New York City

NEW WOOLEN CLIPS

"None Better Made"

Atlantic Woolen Mills, Inc.
Dryden, New York

New York Office and Warehouse:
527 Broome Street

We are fully equipped for any sized orders in the line of Fine Woolen Shoddies, Merino Stocks and Wool Substitutes. We are devoting our entire energy to Government orders, and to quick deliveries.
Communicate with us.

ALL STEEL
ECONOMY
FIRE PROOF
BALING PRESSES
ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.
ECONOMY BALER CO. DEPT. — ANN ARBOR, MICH. U.S.A.

RAGS, SUBSTITUTES AND WASTE

QUOTATIONS

WOOL WASTE

Fine white Australian lap waste.	Nominal
Fine white lap waste	165 —170
Fine colored lap waste	135 —140
Medium colored lap waste	115 —120
Fine white Australian ring waste	Nominal
Fine white ring waste	160 —165
Fine white Australian thread waste	Nominal
Hard Ends—	
Fine white	100 —105
Medium white	85 — 90
Coarse white	60 — 65
Medium colored	Nominal
Colored spinners' waste, greasy	Nominal
Australian white cards waste, clean	Nominal
Fine white card waste, clean	50 — 55
Medium white card waste, clean	45 — 50
Colored card waste, fine clean.	20 — 25
Colored card waste, medium	15 — 20

REWORKED WOOL OR FIBER—

	Cents per lb.
Blue serge	48½
Brown serge	58
Green serge	58
Red serge	55
Black serge	44½
White softs	86
White flannels and serges	83
White knits	92
Red knits	59
Blue knits, mixed	57
Silver gray knits	93
Brown knits	66
Fancy knits	43½
Black dressed knits	63
Light hoods	76
Light gray underwear	50
Fine light merinos	58½
Fine dark merinos	48
Coarse dark merinos with serges	38
Coarse light merinos with serges	50
Thibets	50½
Light skirted cloth	39
Black and white skirted cloth	42
Fine lt. skirted cloth	44½
Brown skirted cloth	29
Dark skirted cloth	27
Black skirted cloth	29
Blue skirted cloth	29
Tan skirted cloth	48
Lt. skirted worsteds	48½
Blue skirted worsteds	43
Black skirted worsteds	44½
Brown skirted worsteds	46
Dark skirted worsteds	39
Wool carpets	30
Soft back carpets	33½
Skirted delaines	36

NOTE: Fiber prices for the present are purely nominal. Very few of above varieties have been called for in recent months. Where sales have been made recently they have been at from 5 to 10 per cent. lower than above figures.

NEW WOOLEN CLIPS

Fine clips	30 — 32
Ordinary clothing clips	20 — 21

MEN'S WEAR CLIPS

Worsteds—	
Dark	39 — 42
Light	46 — 48
Black and white	50 — 51
Brown	46 — 48
Blue	52 — 54
Black	55 — 60
Edges	45 — 46

HEAVY CLIPS

Mixed Mackinaws	15½ — 16⅛
Mixed overcoatings	25 — 26
Brown chinchillas and cheviots	— — 26
Blue chinchillas and cheviots	— — 26
Black chinchillas and cheviots	24 — 25
Oxfords	— — 23
Black and white	— — 26
Mixed lights	15 — 16
White chinchillas	— — 68
Brown lights	19 — 20
Shawls	— — 15

COTTON WARP CLIPS

Dark unions	8½ — 9
Light unions	10 — 11

	Cents per lb.
Serges, black and white	14 — 15
Serges, light	13 — 14
Palm Beach	— — 17
Delaines mixed colored	6 — 6½
Black astrachans	— — 13
Mixed	— — 12
Black cloakings	9 — 10
Blue cloakings	9 — 10
Brown cloakings	9 — 10
Mixed cloakings	6 — 7

GOVERNMENT CLIPS

OVERCOATINGS

Indigo	29 — 30
O. D.	43 — 45
O. D. worsted	— — 65
Cadets	51 — 52

FLANNELS

Blue	32 — 33
Black	32 — 33
Green	32 — 33
Light	34 — 35
Tan	36 — 37
Mixed	23 — 25
Scarlet	38 — 40
Steel Gray	35 — 38
Dark	25 — 26
Fancy	26 — 27

WOMEN'S WEAR CLIPS

Serges—	
White	— — 65
Blue	45 — 48
Black	44 — 46
Brown	42 — 44
Green	44 — 46
Maroon	40 — 42
Light	37 — 39
Tan	52 — 54
Light blue	50 — 52
Mixed dark	24 — 25

OLD WOOLEN RAGS

Merinos—	
Coarse light	17 — 18
Fine light	26 — 27
Coarse dark	12 — 13
Fine black	15 — 16
Fine dark	16½ — 17
Small	5 — 5⅛
Serges—	
Light	26 — 27
Brown	27 — 27½
Blue	18½ — 19
Black	18 — 19
Red	22 — 23
Green	25 — 26
Flannels—	
Fine white	41 — 42
Coarse white	41 — 42
White No. 2	28 — 29
Red	20 — 21
Blue	13 — 14

DELAINES AND LINSEYS

Skirted	5 — 6
Red flannel	— — 6
Best plaids	— — 6
Best brown	— — 6
Best blue	— — 6
Common gray	2½ — 3
Knit—	
White	51 — 52
Blue, dark	23 — 24
Blue, light	20 — 21
Blue, mixed	21 — 22
Black, trimmed	26 — 27
Black, untrimmed	24 — 25
Red	22 — 23
Brown	28 — 29
Light gray	11 — 12
Hoods—	
Light	36 — 38
Mixed hoods	16 — 17
Silver gray knit	33 — 34

SKIRTED CLOTHS

Skirted worsteds—	
Light	17 — 18½
Black	18 — 18½
Blue	15½ — 16
Dark	12 — 13
Brown	16 — 17
Skirted cloth—	
Fine light	13 — 14
Light	11 — 12
Blue	7 — 7¼
Dark	6 — 6½
Plain black	7 — 7¼
Skirted, tan kersey	20 — 21
Skirted, tan covers	20 — 21

SUBSTITUTES QUIET; FIRMER TENDENCIES

New Woolen Clips Steady to Strong on Clean-Up Offerings—Rags Not Declining

Firmer tendencies in the substitute market are noted here and there in the various branches of the trade. Usually when dullness rules in the piece goods market, dullness rules in new woolen clips and old rags. To a certain extent it is also true that a period of uncertainty in consuming channels is marked by similar characteristics in sources of production, although it does not always follow, for the time certainly arrives when initial orders indicate productions decided upon. Samplings continue in evidence, according to sellers of substitutes, as indicating a present progress on manufacturers' lines, but as buying lags it proves that decisions have not been fully made.

REACTION IN CLIPS

Steadiness is reported as to values in new woolen clips. Khaki is more or less a drug on the market, but other men's wear grades have been brought out recently in slightly more appreciable quantities through cutters' inventories. They have been quite too busy with other things, apparently, to give this detail adequate attention. While better prices were possible under the

SHERWIN WOOL CO.
SPECIALIZES YOUR REQUIREMENTS
Woolen Rags
213 A Street BOSTON

DANIEL J. REILLY
SILK NOILS YARN WASTE COTTON WOOL WORSTED
36 Ditmars Street, Brooklyn, N. Y.

The W. L. Loeser Co.
Buffalo, N. Y.
Careful Graders of
WOOLEN RAGS
DELAINES—LINSEYS

M. SALTER & SONS
WOOLEN RAGS
Our specialty is to grade woolen rags of every description ready for the picker. Write for samples and prices. Correspondence solicited.
CHELSEA, MASS.

American Wool Stock Co.
(R. Goldstein & Son, Proprietors)
WOOLEN RAGS
Advise grades you require.
Packing Plant New York Office
Highlandtown, Baltimore, Md. 200 Fifth Avenue

SHIRLEY MILLS
SHIRLEY, MASS.
Manufacturers of
REWORKED WOOL
Sales Office, Chelsea, Mass.

GORDON BROS., Inc.
Manufacturers and Dealers in
Wool Shoddy, Wool Extracts,
Wool Waste, Woolen Rags
Telephone Connection
HAZARDVILLE, CONN.

S. RAWITSER & CO.
WOOLEN RAGS
WOOL WASTE, SHODDIES,
FLOCKS, NOILS AND EXTRACTS
283-285-287 West Broadway New York
Our specialty is to grade woolen Rags of every description ready for the picker.

Marion Woolen Mills
Custom
Picking, Carding and
Garnetting
Chepachet, R. I., U. S. A.

THE CRAWFORD PRESS
Steam Plate Presses—Baling Presses
The First in 1865—The First Today
NASHUA STEAM PRESS
AND BOILER WORKS
Nashua, New Hampshire

Elliot Cloth Folder and Measurer
FOR PRINT WORKS, GINGHAM AND COTTON MILLS, BLEACHERIES, ETC., ETC.
Send for circular.
Manufactured by
ELLIOT & HALL, 54½ Hermon St., Worcester, Mass.

Government ratings, it is understood bids are improving again from their lowest point in the reaction.

WOOLEN RAGS STEADY

Old woolen rags also evince more steadiness. Dealers report declines stopped and conditions among graders appear more stable. There is little added activity to report. Space is sought for exports of grades wanted abroad and salesmen sent over, it is understood, are meeting with fair success. Graders are bidding up to 16 cents on mixed soft and 6 cents on rough cloth, it is reported, and are taking a more optimistic view of the resumption of local demand in a very short while.

SUBSTITUTES QUIET

Inventories Being Taken at Mills—Rag Market Takes on Firmness

BOSTON, Jan. 8.—No change is noticeable in the market for recovered fibers which continues slow and inactive. The woolen mills which furnish the outlet for these commodities, are very quiet, giving chief attention apparently to getting out samples. A great deal of uncertainty prevails, and it seems sure that no great development of business is to immediately result. At this season of the year inventories are being taken, and on some classes of stock, both fibers and rags, losses owing to depreciation will have to be written off.

The rag market has taken on a firmer tone. Sales have not increased to any degree but more confidence is visible. This has resulted in mixed softs and rough cloths rising half a cent as compared with last week's prices. One reason—and perhaps the chief one—is found in the removal of all restrictions on both sides of the Atlantic on the movement of woolen rags. Shipping rates are lower, a 4¾-cent rate per hundred now being in force. There is very little domestic demand for graded stock, but great expectations are entertained, that before the end of the month a larger demand will spring up.

Substitute Trade Notes

Ocean freight rates are reported a deterrent to much exporting of woolen rags. New York firms report cargo space available, but at the rate of 4¾ cents a pound and before the war three-tenths of a cent was a common rate.

The Cooperative Junk Co. of California, Inc., has bought the plant and stock of the Los Angeles Raw Stock Co, Ninth and Santa Fe Avenue, Los Angeles, Cal. With C. E. Hoyle continuing as manager for the new company, which will operate "The Pacific Woolen Mills", they will grade rags, also manufacture wool shoddies and substitutes under the name of "Pacific Brand."

Calendars and Souvenirs

A small pink and white calendar, of delightful domestic suggestiveness is issued by Birch Bros. of the Somerville Machine Works, Somerville, Mass. A beautiful mother in a blue gown with a yellow rose in her dark hair, is holding a smiling babe dressed in white; it is a reproduction of an actual photograph and is entitled "Little Sunshine."

John Armitage & Son, 58-60-62 North Fourth street, Philadelphia, dealers in wool, worsted, cotton and silk yarns, have distributed an inspiring wall calendar showing "Old Glory" proudly waving in the breeze in all its beautiful colors against the blue sky.

JAMES G. KITCHEN & CO.
Hair WOOL Noils
Manufacturers of
Woolen Shoddy
8 and 10 Letitia St. :: Philadelphia

HERBERT HESTON, JR. ROBERT W. A. WOOD
HESTON & WOOD
Wool, Noils and Waste
Worsted Yarns
212 Chestnut Street Philadelphia, Penna.

F. T. Jennings & Co.
IMPORTERS AND DEALERS IN
Waste, Wool and Noils
111 Chestnut Street, Philadelphia

ISAAC P. SPATZ & CO., INC.
Wool, Noils and Waste
114 Chestnut Street PHILADELPHIA

HUNGERFORD FILTERS
Especially designed to meet the requirements
of the TEXTILE TRADE
HUNGERFORD & TERRY, Inc.
Engineers and Manufacturers of Water Filters
Pennsylvania Bldg. PHILADELPHIA, PA.

FOREIGN MARKETS

TRADE APPROACHING PRE-WAR CONDITIONS

Details of Wool Imports Published Again—Next British Clip May Enter Free Market

(From our regular correspondent)

BRADFORD, ENG., Dec. 12.—Various indications may be seen that the trade is slowly but surely making its way back to pre-war conditions. Reference has been made on many previous occasions to the injury which was being done by the withdrawal of much of the statistical information which various sections of the industry had been accustomed to receive. The importance attaching to this information was that it enabled the trade very often to see at a glance what progress had been made in any given period, and particularly in relation to arrivals and stocks of wool, to forecast what was likely to be the future position. A definite step towards giving back again to the trade all this valuable information was taken when the statistical committee associated with the Wool Council published their estimate of the stocks of wool in this country at the end of November and of the stocks of tops on September 21st this year. A later step of a more comprehensive character was the publication of an estimate of the world's stocks of wool for the next two years, and now it is possible to say that the *Board of Trade Returns*, (a Government production), for the month of November have been issued with the same promptness and in the full and complete form in which they used to appear before the war. Traders will appreciate the restoration of the old style of giving the information, for it is a clear evidence that pre-war conditions under which it was possible to do business with any destination in the world, providing traders had sufficient enterprise and energy to seek customers, are being restored.

WOOL IMPORTS

At the present juncture the most important part of the *Board of Trade Returns* is the one giving wool imports. The details are quite in harmony with what has been known to be the position of shipping for the past twelve months or more. Spinners and manufacturers at home have been exercised in their minds as to the probability or otherwise of sufficient shipping being available to bring home adequate quantities. It will be noticeable from the following particulars that only two sources of wool supply out of the eleven which are tabulated show an increase. The decreased arrivals from the Argentine are most significant. The following are the details given in the *Returns:*

	Eleven Months Ended Nov. 30.		
Origin.	1916. Lbs.	1917. Lbs.	1918. Lbs.
Russia	212,295	.....	.....
France	4,249,893	231,580	.....
Uruguay	823,306	4,871,038	470,500
Argentine Republic	29,068,909	31,823,197	6,208,837
South America (W. Coast, including Bolivia)	10,722,855	7,188,344	2,811,120
British South Africa	85,999,765	44,611,540	31,276,681
British East Indies	63,306,888	40,429,227	54,232,626
Australia	224,705,981	327,729,098	194,581,015
New Zealand	154,996,297	142,184,534	85,696,911
Falkland Islands	4,263,018	1,801,605	5,052,320
Other Countries	11,780,930	5,850,119	10,007,693
Total	590,130,137	603,720,282	390,337,703

It is understood in authoritative circles that it has been decided by the Department that the 1919 home grown clip shall be placed on a free market. If this is done some restrictions will probably be placed on any sales which buyers may intend to make on account of customers outside this country, but apart from this the announcement will be regarded with the utmost satisfaction. No doubt it will please the growers, for ever since their clips were bought by the War Office there has been a suspicion that they did not get the best price which could be paid, and the demand of the National Sheepbreeders' Association for 100 per cent. advance on 1914 purchase prices though undoubtedly indicative of an exaggerated feeling, is also clearly suggestive of the impression that the representatives of the wool growers believed that if their wool was offered for free sale, they would be able to command a better price than the Department had paid. Now that there is every probability of the control being abandoned the demand of the farmers will fall through automatically. Merchants also will be keen to secure some of the legitimate advantages of which they have been deprived since 1916. The present feeling among growers and merchants seems to suggest that there has been a fairly good understanding between the two parties.

WORK OF BRITISH WOOL FEDERATION

Great credit is due to the efforts which have been made by the British Wool Federation towards securing the release of English fleeces and skin wools and also towards the re-opening of the London auctions. It is impossible to separate these two aims. The British Wool Federation includes both home and Colonial wool merchanting interests and it will of course be recognized that the financial responsibility involved in purchasing Colonial wools is made greater by the purchase of the British clip. The reasons in favor of the release of all wools grown and arriving in this country for public auction are of a cumulative character, for in addition to growers being anxious to secure the best price possible for their produce, and merchants being keen to handle the wools on account of manufacturing clients, there is also a very important consideration that only by the free disposal of wool can a really satisfactory basis of values be established. So long as Departmental purchase continues there will always be the probability of some party or other being charged with taking profits out of the wool to which they are not entitled. This is one reason among many others which may be given in favor of as early a release of all raw material for public sale as is practicable. Any other considerations which may be brought forward against this step being taken are dependent entirely upon war emergencies and the speed with which these emergencies cease to exist may be taken as the rate at which the wool industry is entitled to expect to be allowed to return to its old methods of carrying on business.

SPINNERS' STRIKE DISRUPTS INDUSTRY

Stopping of Production Results in Strengthening of Values—Look for Prompt Settlement

By *Frederick W. Tattersall*

MANCHESTER, ENG., Dec. 12.—The feature of interest in the market this week has been the strike of operative spinners, the whole of that section of the Lancashire cotton industry being brought to a standstill. There were hopes at the end of last week of a settlement but in spite of further negotiations the employers and the trade union officials failed to agree and the mills ceased to work on Saturday. Yesterday an important development occurred in that Lloyd George intervened and asked representatives of the two sides to meet him in London. At the time of writing the result of the conference is not known. Business in all quarters of the market has been thoroughly disorganized. The stoppage of production of yarn has naturally resulted in values hardening, but buyers of yarn and cloth have not been stimulated to 'place orders with more freedom. Numerous spinners and manufacturers have refused to quote. Trade at the moment is in a state of chaos and owing to many uncertainties existing there is a strong disposition to mark time and wait for further developments in the situation. The chief stumbling block to a revival of demand is undoubtedly the fact that the prices being secured for cotton fabrics in foreign outlets are decidedly lower than the rates ruling in Manchaster and until this difference is bridged there seems to be no hope of operations on a freer scale. Scarcely any interest at the moment is being taken in raw cotton matters. The official estimate of the crop published late yesterday by the United States Government has been ignored. Most people here have made up their minds to a yield of over 13,000,000 bales. Certain welcome changes are announced with regard to the distribution of Egyptian cotton and larger supplies of certain types are now being offered by the control commission in Alexandria.

THE WAGE CRISIS

Through the efforts of Sir George Askwith, the Chief Government Industrial Commissioner, a special joint meeting of representatives of the Master Spinners' Federation, the Operative Spinners' Amalgamation and the Cardroom Operatives' Amalgamation was arranged for last Friday afternoon in the hope that at the last moment a strike on the wages question would be prevented. After three hours' deliberations, however, the two sides failed to agree and the meeting broke up without any settlement. The employers repeated their previous offer of 40 per cent. on list rates and also stated that if their proposal could not be accepted then they were prepared to submit the matter to arbitration. The leaders of the men replied that the wages offer could not be accepted and they could not agree to arbitration. Sir George Askwith made a final effort at conciliation but neither side would give way. It may be pointed out that the claim of the workpeople is for 40 per cent. on current wages which means about 66 per cent. on list rates. Yesterday morning Sir David Shackleton, the secretary to the Minister of Labor, who at one time was the president of the Operative Cotton Weavers' Amalgamation came to Manchester and issued invitations to all the parties concerned to meet the Prime Minister in London this morning. Conferences have continued all day but so far no settlement has been reached. There are rumors of the employers conceding a further concession in the way of shorter working hours in the mills.

TRADE VERY DULL

The yarn and cloth markets this week have been decidedly dull. The strike has overshadowed all other matters. Stocks of yarn are comparatively low and although the stoppage of the spinning mills has not yet been going on a week, looms are being forced to cease working as a result of the shortage of twist and weft. Manufacturers have refused to commit themselves to definite delivery terms. Inquiry from abroad has been featureless. Leading shipping houses have received very few wires from their representatives on the other side. Here and there rather more money has been paid for stock lots of piece goods. Nominally yarn quotations have been put up but there has been very little business offering. American qualities are said to be about 4d a pound dearer than a week ago, and rates in Egyptian descriptions have been raised to an ever greater extent. Trade, however, has been at a very low ebb and some spinners have been unable to sell stock lots.

FOREIGN TRADE IN NOVEMBER

Nearly two years ago the British Government, owing to war conditions, ceased to publish the destination of exports of cotton yarn and cloth, the monthly returns only giving the totals. For November, however, details are available and considerable interest has been taken in the statistics. Last month we shipped 9,425,200 pounds of yarn against 8,457,000 pounds in November, 1917. Compared with last year there are small increases in the exports to France, Switzerland and Norway but smaller exports are recorded for Bombay, Calcutta, Madras and the United States of America, the figures for the latter being 154,400 pounds, as compared with 617,400 pounds in November, 1917. For the eleven months ending November 30, only 3,834,500 pounds of yarn were shipped to the United States as compared with 10,063,600 pounds, in the same period of last year. With regard to cloth, exports during November total to 232,762,900 yards against 394,487,100 yards last year. A decided falling off shows itself in the shipments to India and China. The figures for the United States are 1,876,600 yards, as compared with 4,003,700 yards in November, 1917. For the eleven months ending November 30, England's shipments to the United States are 28,177,200 yards against 65,969,600 yards in the same period of last year.

EASTHAMPTON, MASS. The Union Button Co., which formerly had 15 looms for the manufacture of silks, has discontinued weaving and disposed of its textile machinery.

RAW MATERIALS

COTTON STEADIES AFTER A DECLINE

Southern Spot Holders Fail to Weaken and Covering Sends Contracts Higher —Bill to Limit Deliveries

The cotton market has been nervous and irregular during the past week. The failure of trade demand to develop right after the turn of the year was a distinct disappointment to people who had bought cotton before the holidays. This led to realizing which later became liquidation as prices declined, with the market breaking to 26.20 for March contracts, compared with 29.10, the high price touched between Christmas and New Year's. At this level the market was steadied by reports that Southern spot holders were not following the decline, favorable advices from the export standpoint and a firmer technical position. Before the close on Tuesday March showed a recovery of fully a cent a pound on covering, which was stimulated by a desire to even up commitments in advance of the holiday on Wednesday.

During the earlier part of the week quite a bearish sentiment seemed to be developing, apparently on a growing impression that the general reluctance to pay war prices for goods during peace times would result in lower markets. There may also have been selling upon a belief that the failure of trade demand to develop would prove as much of a disappointment to Southern spot holders as to holders of long contracts in the futures market. At times, indeed, there were indications of a little more hedge selling around the local ring, but the pressure was not active enough to indicate any general weakening in the view of holders and the advance before the holiday was accompanied by bullish advices.

Coupled with the unsatisfactory reports from the goods trade, one of the factors on the decline was probably an optimistic view of preliminary new crop conditions. For the first time in three years there have been good rains in Texas and there is every prospect that the new crop will have the advantage of a good season in the ground. There is also a feeling that there will be more and better fertilizer available in the Eastern belt. It may be recalled that at the beginning of the war much was heard of the absence of potash. After long discussion this matter dropped from sight as a prominent market influence, but many traders believe that one reason for short crops in Eastern sections of the belt has been the use of inefficient fertilizer. It is reported that plans have been made to increase the supply of potash, while the Government has announced that it will sell nitrate in sufficient quantity to meet any reasonable demand. It is still too early in the season for new crop prospects to exercise a dominating influence, however, and whatever the outlook may be, there has, as yet, been no indication that Southern holders of remaining old crop supplies were losing confidence in their ultimate outlet.

It is probable that at the present time there is more cotton in the South available, either ginned or unginned, than at the corresponding time during any previous year since 1915. According to a compilation prepared by a local statistical bureau the amount of cotton available to be brought into sight at the first of the year amounted to 7,907,957 bales compared with 5,840,483 bales at the same time last season and 4,215,261 last year. In view of this supply it would seem that a continued policy of slow marketing would be necessary to sustain prices, and it is a question as to whether early new crop prospects as they develop will cause any change of attitude on the part of holders during the spring and early summer. The following table will show Tuesday's closing prices in the leading spot markets of the country with the usual comparisons:

Market	Jan. 2	Jan. 7	Change	Last year	Sales
Galveston.	31.75	31.25	— .50	31.65	3,470
N. Orleans	30.75	30.25	— .50	31.50	2,139
Mobile....	29.50	28.00	—1.50	31.50	10
Savannah.	31.00	31.00	...	31.25	50
Norfolk...	29.50	28.50	—1.00	31.25	1,246
New York.	32.40	31.60	— .80	33.25	....
Augusta...	29.88	29.38	— .50	31.50	1,826
Memphis..	30.50	30.00	— .50	31.25	2,325
St. Louis..	....	30.50	...	31.00	....
Houston...	31.40	30.15	—1.25	31.60	4,366

In addition to the quotations above the following differences on and off middling are given as compiled from the reports received by the New York Cotton Exchange late on Thursday:

	Dallas.	Memphis.	Montgomery.	Augusta.	Average.
WHITE GRADES.					
M. F.	1.50†	2.00†	1.25†	2.25†	1.74†
S. G. M....	1.00†	1.25†	1.00†	1.75†	1.28†
G. M.	.50†	1.00†	.75†	1.25†	.90†
S. M.	.25†	.50†	.38†	.75†	.46†
Middling ..	....	....	....	....	....
S. L. M....	1.50*	1.00*	1.25*	2.00*	1.23*
L. M.	3.50*	2.50*	3.00*	4.25*	3.38*
S. G. O....	5.50*	4.50*	5.00*	6.25*	5.61*
G. O.	7.50*	5.50*	7.00*	8.25*	7.31*
YELLOW TINGED.					
S. G. M....	.50†	.50†	.25†	.12†	.12†
G. M.	.50*	.50*	Even	Even	.35*
S. M.	1.00*	1.00*	.62*	.65*	.98*
Middling ..	1.50*	1.50*	1.50*	2.15*	1.85*
S. L. M....	2.50*	3.00*	4.50*	2.50*	3.10*
L. M.	4.50*	4.50*	6.50*	3.50*	4.98*
YELLOW STAINED.					
G. M.	1.75*	2.50*	1.75*	1.50*	2.05*
S. M.	2.50*	3.50*	2.50*	2.50*	2.90*
Middling ..	3.00*	4.50*	3.50*	4.50*	4.00*
BLUE STAINS.					
G. M.	2.25*	2.50*	2.50*	2.75*	2.63*
S. M.	3.00*	3.50*	3.25*	3.25*	3.60*
Middling ..	4.00*	4.50*	4.75*	5.75*	4.90*

* Off † On.

Cotton Trade Notes

Senator Smith has introduced an amendment of Section 5 of the Cotton Futures Law, which he hopes will insure contract prices in the futures markets maintaining a parity with middling cotton in the South. He proposes to accomplish this by limiting the number of grades tenderable.

According to a telegram received here in reply to an inquiry, Senator Smith said that his bill provided that cotton delivered on, under or in settlement of futures contracts shall be middling, strict low middling, low middling, strict middling and good middling. This, of course, would shut out from tender lower grades and it seems also tinges and stains.

Another wire received from Senator Smith said that his amendment was certain to pass and would become a law immediately.

The Shipping Board has announced plans for immediately furnishing all the ships that exporters may need. Assurances have been made that allocation will be made far enough ahead to assure shippers of safety in making commitments at least three months in advance, naming ships and sailing dates.

Sir Joseph Maclay, the British Minister for Shipping, says the time is not far distant when it will be possible to release tonnage on a substantial scale, thereby creating free tonnage and freight markets. He states also that North Atlantic commercial cargo space will be doubled and that space will be competing for cargo, instead of cargo competing for space.

The British freight allotment for February was equivalent to about 275,000 bales of cotton.

A Liverpool cable quotes Sir Charles Macara as stating that any great extension of the cotton industry is impossible until millions of spindles destroyed during the war are replaced.

A reduction has been announced on freight rates by Washington applying to shipments from South Atlantic and Gulf ports to Europe. The rate from South Atlantic ports to Liverpool will be $4.50, French Atlantic ports and also Rotterdam and Antwerp $4.75, French Mediterranean ports $5.25, and Italian ports $5.50. From Gulf ports the rates will be 25c higher in each case.

A potash plant has been established at Portland, Ga., that is making a material that runs from four to five per cent. of soluble potash. Agricultural experts, who have made careful examinations into crop conditions in the Southeast, have found and reported better cotton yields and larger yields of seed where sufficient potash is used.

Weil Bros. of Montgomery, Ala., say that holders of spot cotton are selling at their leisure, being amply margined or independent financially. This firm believes that the farmer will continue the policy of selling slowly during the balance of the season.

Reports from the Southwest emphasize the excellent season in the ground. S. M. Weld & Co.'s Texas traveler says no one could wish for better weather conditions than at this date this season, and the new Texas crop will evidently start under much more favorable auspices so far as subsoil moisture is concerned.

Calendars and Souvenirs

A unique card containing New Year's greetings is that issued to their friends by the U. S. Gutta Percha Paint Co., Providence, R. I. The sentiment expressed is original and in keeping with the well-known character of their products, mill paint, namely: "May the coming year paint out clean and white the stains of War and bring to all the World Peace and Prosperity." An illustration shows two painters on a scaffold swinging from the globe, industriously painting the white of Peace over the earth's surface.

Edward Jefferson, importer and dealer in worsted, woolen and cotton machinery, 19-23 South Second street, Philadelphia, has distributed his welcome daily wall calendar.

The Erwin Yarn Agency, Inc., cotton yarns, direct selling agent for a large group of southern mills, with offices at 229 Chestnut street, Philadelphia, has presented to their friends a very handsome wall calendar very artistically finished, with a reproduction in delicate colors entitled "Apple Blossoms."

The Stafford Co., of Readville, Mass., on a dainty little card, express their good wishes for the coming year to all their customers.

WASTES MARKING TIME

Small Volume of Transactions—Mill Contracts Still Under Negotiation

BOSTON, Jan. 8.—The year opens very inauspiciously for the cotton waste market. Business seems to range about minimum to keep things intact; of activity in any stock, there is none. As regards export business, there seems to be more talk than actual achievement, although it is said that shipping rates are slightly more favorable. High grade combers and strips are passing in small volume; flat priced stocks, including linters, are almost entirely neglected.

Negotiations are still going on regarding mill contracts for 1919. In spite of the uncertainty—quite abnormal as a matter of fact—as to what level cotton will settle at in order for stable business operations, dealers are going ahead, both in the North and South. It is reported that roving and spinning waste is on a 95 to 100 per cent. basis; peeler combers range from 75 to 90 per cent., and strips from 70 to 75 per cent. The trade generally continues quite hopeful, and understands that the depression under which it labors is common to textile industries in their entirety.

QUOTATIONS

COTTON WASTE—MILL RUN
(See Note)

	Per cent.
No. 1 peeler comber	65 — 75
Short peeler comber	75 — 80
No. 1 Egyptian comber	70 — 80
Short Egyptian comber	65 — 70
White card strip	50 — 60
No. 2 white card strip	30 — 35

	Cents.
Dirty card fly	4 — 4¼
Dirty picker motes	3 — 4
Card and spinning sweep	3¼ — 4
Weave sweeps	3½ — 4
Soft white threads	12 — 12½
Hard white threads	10 — 10½
Soft colored threads	11 — 11½
Hard colored threads	8½ — 10

COTTON WASTE—GRADED STOCK
(See Note)

	Per cent.
Sakelarides comber	70 — 75
Sakelarides strips	85 — 95
Egyptian comber	70 — 75
Egyptian strips	67 — 72
No. 1 white peeler comber	70 — 80
Peeler strips	67 — 72
No. 1 white strips	65 — 70
No. 2 white strips	57 — 65
No. 1 white spinners	82 — 87

	Cents.
No. 1 soiled card	10 — 14
No. 1 oily card	7 — 7½
No. 2 oily card	6 — 6½
No. 1 white willowed fly	12 — 13
No. 2 white willowed fly	9 — 9½
No. 1 cleaned white picker	8 — 11
No. 2 cleaned white picker	6 — 8
Soft white threads	13 — 14
Hard white threads	12½ — 13¼
Soft colored threads	13 — 14
Hard colored threads	11 — 12

LINTERS

	f.o.b. N.Y.
Texas, clean mill run	— — nom.
Texas A	— — nom.
Eastern, clean mill run	— — nom.
Staple linters	— — nom.

NOTE.—*Percentage based on prices of New York Middling Uplands spot cotton for day of shipment.*

A golden vase filled with bright red flowers stands at the head of the season's greetings, which the Thomas Wolstenholme Sons & Co., Inc., of Philadelphia, offer their clients. As might be expected from anything from Philadelphia the Liberty Bell is also in evidence.

The Mark of

Mutual Satis-faction

DAVIDSON'S policy is that you are to be fully satisfied every time we trade. No transaction is considered profitable to us in which our customers are not satisfied with their purchase.

Write us regarding your requirements in

WOOL NOILS WASTE

WM. G. DAVIDSON & CO., INC.

32 SOUTH FRONT STREET PHILADELPHIA, U. S. A.
192 SUMMER STREET BOSTON

RAW MATERIALS—Continued

WOOL MARKET BUSY CHANGING GEARS

More Optimistic Feeling Spreading—Elucidation of Administration Standpoint—Summary of Wool Auctions

BOSTON, Jan. 8.—The wool market today is the resultant of a series of opposing forces and interests. Summer street is only one factor in the complex situation. Sentiment is veering round to the conviction that the New York clothiers hold the key to the situation as being interpreters of what they consider to be the public needs and necessities; and that until they are ready to place orders with the mills little further can be done in the readjustment of the wool industry upon a peace foundation. The opinion is held in some quarters that the clothiers may get a severe jolt in the near future when they realize that the trade is here and they cannot get the goods from the mills. English competition does not seem to threaten so formidably, now that it is known that Great Britain has her own population and large sections of Continental Europe bare of goods. That England has large stocks of spot wool is considered a delusion by several well informed men. Considerable support to this view is gained by consideration of the English noil market, which ranges about 15 per cent. higher than our own. Fine noils are being issued there to civilian manufactures at $1.20; similar noils can be purchased in Boston at 90 to 95c.

And further, world shipping conditions are not such as to support those who think that either this country or England are likely in the immediate future to receive much foreign wool. There are immense stocks of wheat both in Australia and South America awaiting shipment and this commodity will probably receive priority. Cables from South America offering wool to a prominent house here contained the proviso that it would be from 60 to 90 days before shipping would be available.

ADMINISTRATION STANDPOINT EXPLAINED

Waiting for low wool prices may prove to be a misleading, if not disastrous policy. But manufacturers, as a whole, are taking this position and that wool dealers in general adopt the sentiment seems fairly certain; but on the other hand the officials of the wool administration take a different view. They contend that wools bought at the recent auctions were taken in as low as they could be procured anywhere. That, as a matter of fact, the Government was assuming large losses; that wools sold even at July 30 prices were sold at a loss to the Government and that it was not the policy of the administration, in gradually getting out of the wool business, to break wool prices. The small attendance of bidders at the recent auction is alluded to as proof that there is no keen manufacturing demand for wool and that lacking this demand there is no reason at all for sacrifice prices.

The recent Government wool sales are very generally regarded as failures because so many offerings were withdrawn for lack of interest and complete absence of bidding. The contention has been urged that if the wool were marked down low enough, if Government minimums now pretty well known had been lowered, the auction seats would have been filled with spirited bidders. But the textile situation is not nearly so simple as such a view seems to suggest. The industry moving backwards under war conditions had to come to a standstill, if but for a moment, before the gears could be changed for a forward movement. It is questioned by those close to the administration whether the only thing necessary to bring the machine to a halt and then start it forward was the offering of wool at sacrifice prices by the Government.

There is a very general feeling on the street that Government wool sales will be abandoned, in the very near future, in favor of some simpler method, say, of cataloging all wools, affixing a price and letting things go at that; but those close in touch with wool administration officials do not quite take this view. It is admitted that administration officials generally, being old wool men, might have preferred some other and perhaps more American method; but the rules and regulations of the Quartermaster's Department preclude the idea of selling Government goods below cost by any other method than that of auction. Nevertheless, behind Quartermaster General Goethals stands Secretary Baker, and behind Secretary Baker the President, all alike standing on the free Constitution; and rules and regulations, with all their red tape, are brought into being by free action and may be modified or dispensed with by the same agency.

Opinion that Government sales have been a failure is not by any means unanimous. Those who take the position occupy, it is considered, a rather narrow standpoint. The amount owned by the Government is only about six months, normal consumption and it is pointed out that if the demand were keen enough the wools would be taken up rapidly. The Government's policy not to press wools on the market but to feed them out as required is not without its supporters. In the judgment of one well-known wool merchant "Government sales have been very wisely managed; if the administration had forced sales the fall in values would have been very marked and quite unnecessary."

SUMMARY OF RECENT WOOL AUCTIONS

The second series of Government wool sales came to an end Saturday, Jan. 4. The attendance on all three days was quite limited and the withdrawals very heavy. On the first day, offerings comprised 12,000 bales of Australian, 300,000 pounds of Cape wool, 5,000,000 pounds South American and 100,00 pounds of tops, chiefly South American. The only snap in the bidding, covering the entire three days, was shown for the first 20 lots of fine Australian. Interest died away rapidly and of the 116 lots of Australian offered 72 were withdrawn. One or two lots of good deep combing wool brought prices on a parity with previous auction but, as a whole, prices were down from 3 to 5 per cent. The limited offering of Cape wool was taken at figures slightly lower than those realized at last series. South American withdrawals were heavy and were in part as follows: 14 lots of 58s South American, all withdrawn; 21 lots 50-56s S. A., 17 withdrawn; 20 lots class 3 combing, 15 withdrawn; 19 lots class 4, 14 withdrawn; 8 lots class 5 combing, 7 withdrawn; 10 lots 46s-56s carding, all withdrawn before sale commenced; 9 lots class 4 carding, all withdrawn; 22 lots greasy S. A., 20 lots withdrawn; 16 lots tops, 11 withdrawn.

Attendance at second day's sale was much smaller and bidding lethargic. Prices reached for choice lots were on a par with previous auctions. The day's offerings comprised 1,900,000 pounds of domestic fleece wools, 5,000,000 pounds of territory wools, and 250,000 pounds of Texas wools. Choice Ohio Delaine sold to $1.70 as against Government issue price of $1.95; choice Ohio half-bloods brought as high as $1.54 against issue price of $1.75; choice three-eighths bloods sold up to $1.30, issue price at $1.55; choice quarter-bloods sold up to $1.29 against issue price of $1.40. Demand for territory clothing wools was very discriminative and many lots were passed without bidding. The first 45 offerings of fine and medium fine territory wools resulted in 22 withdrawals.

At third day's sale attendance had dwindled still further, about two score bidders being in their seats when auction opened. The administration offered 700,000 pounds of greasy pulled wool in 49 lots, 36 of which were withdrawn. The demand for the 1,700,000 pounds of foreign and domestic scoured wools was intermittent, selective and weak. Thirty-nine lots of fine scoured Australian wool resulted in 20 lots being withdrawn. Fine Australian carbonized sold at $1.44. There was a better demand for fine scoured Capes. Prices for these wools ranged from $1.27, approximately 11 per cent. below issue price, to $1.48 or par for a choice lot. In domestic wool, fine and medium fine scoured territories were absorbed in fair quantities at around $1.42, or say, 11 per cent. below Government issue figures. Buying on all three days was by mills or dealers acting for them.

IMPORT RESTRICTIONS REMOVED

The announcement by the War Trade Board that all restrictions on the importation of foreign wools will be removed Jan. 10, was anticipated by the trade and is not likely to have any immediate effect on prices. It is regarded as an incident in the relinquishment of wool control. That buying will at once start in the Cape and South American markets is not regarded as likely owing to the fact that shipping facilities are very limited and freights high and the general improbability that wools could be bought in either market, at present time, at prices that would bring them here lower than figures already prevailing at recent Government sales. It is generally believed, however, that some purchases both of Cape and South American wools, made before restrictions went into effect last year, if they could be brought here, would show importers a profit. While this in itself might be regarded as a depressive influence its effect is neutralized, so far as forthcoming Government sales are concerned, by the belief that the Government administrator will shortly announce an upset price based upon British issue prices to civilians. These British issue prices, which must not be confounded with prices at which wool was allotted to British Government contractors, are believed to be on a parity with prices obtained at recent auctions.

Receipts of wool, in pounds, from and including Jan. 1, 1919, compared with the same period in 1918, are as follows:

	1919.	1918.
Domestic	1,505,917	2,354,677
Foreign	1,171,791	9,300,975
Totals	2,676,800	11,655,652

Shipments of wool for the week ending and including Jan. 8 are as follows:

	Pounds
Boston & Maine	65,940
Mystic Wharf	106,900
By sea	343,792
Boston & Albany	552,131
New Haven	406,000
Total	1,474,763
Shipments during previous week	1,678,236
Shipments same week last year	5,217,511
Shipments thus far this year	1,474,763
Shipments same period in 1917	5,702,858

STILL WAITING

Wool Trades to See Stabilized Prices Ere Long

PHILADELPHIA, Jan. 6.—The average wool dealer in this market is disposed to regard the recent wool auctions as anything but a brilliant success. The sales apparently were marked by a lack of anything like demand, with the large number of withdrawals a decided feature in the whole affair. It is very evident, according to those who have studied the situation, that the industry does not care to take up the wools at high prices in view of the present conditions in the entire textile trade. At the same time, many factors argue they can see no advantage in endeavoring to force the market by cutting prices on their goods, just so long as wool values remain uncertain. Not only are their own manufacturing costs indefinite under these conditions, but such a policy only provokes the suspicion of the buyers and they decide to wait for still further possible concessions. Such being the case, there is little real development in the wool market this past week.

URGE UNRESTRICTED SALE

Many factors argue that one of the greatest drawbacks to the auction plan as now being pursued, is the existence of an unknown upset price. This in conjunction with the small quantities offered only tends to "prolong the agony" as it were, and offers little chance for the trade to settle down on what they can feel is a definite basis of value. Various substitutes for the present methods are suggested, the chief of which is the removal of all restrictions as to prices, and also a larger volume of offerings at less frequent sales. While this might result at first in some very low prices being realized, it is also argued by many that the free competition would tend to stiffen prices and bring them up to a higher level which would be satisfactory to the Government. Such a plan it is stated would offer a better method to stabilize values, or afford manufacturers a low basis from which they could work up. Another suggestion is that the wools be consigned back to the dealers in whose hands they are now stored, to be resold in the usual procedure to mills desiring the grades available. Dealers knowledge of the trade's requirements would enable them to handle these wools efficiently and no more loss than by the present scheme. In such a plan, a commission could be allowed for this sale. Such a plan would at least relieve the uncertainty of the manufacturers as to values, and also prevent the flooding of the market with wools.

INTEREST IN LOCAL AUCTIONS

The local trade is awaiting with natural interest the first auction to be held in this city. Considerable amusement has been expressed over the rumor that a pool had been formed among local manufacturers to assure the sale of success in this market, as the question is

asked, whether it would be to the advantage of the trade to operate along such lines which would be entirely counter to their interests. The carpet wool sales to be held this week are awaited with curiosity, as everyone is wondering where the price limit will be set on these wools. It is stated that with the extreme and abnormal prices obtained for these wools for other than carpet uses, it will require considerable reductions to enable carpet manufacturers to find use for them in floor coverings.

SOUTH AMERICA UNCERTAIN

There is still little definite information received from South America as to conditions in that market. Dealers say their reports as to activity in purchasing these wools are decidedly meager. Shipping problems continue to prove more or less a handicap. Offerings are noted with Buenos Aires 48s to 50s, yielding 64 to 65 per cent., at 63c., or a scoured cost of 97c.; 44s to 46s shrinking 31 per cent., at 56c., or 80c. scoured; superior 2nd clip 46s, yielding 66 to 67 per cent., at 49c., or scoured 74¼c. Dealers, however, are not showing much disposition to purchase these wools as yet.

NOILS DULL

Noils are still dull, with little or no effort made to sell or buy these stocks. There is no interest manifested, even at low prices, so that there is little use trying to start something until there is a real demand. With the ending of the federal control over these stocks, and the removal of restrictions, it still requires a demand arising from a steady consumption in the mills to bring about any semblance of activity.

CONFIDENCE RESTORED

Real Values Believed to Have Fictitious Ones Down and Out

NEW YORK, Jan. 9.—Confidence of the Government in freeing the wool market by removing Friday all restrictions on the importation of raw wool and wool tops, noils, yarns and wastes from all non-enemy countries seems to be well placed. The local market received the decision of the War Trade Board with surprise, but with coolness. Developments toward trade resumption had been coming all too slowly, in the minds of factors generally, and the most usual opinion to greet the sudden turn of affairs was that the Government had arrived at a point of certainty that their holdings would not be jeopardized by this action.

For many days the market has been feeling its way through the Government auctions. Bolder spirits took a few lots at the Boston auctions and in the carpet wool purchases in Philadelphia Wednesday and Thursday, the first effect of the changed order was to be seen.

Factors argue that in throwing open the doors to import wools no particular risk is being taken on American values now. Dealers said at once that the fictitious values of the old issue prices and the actual values are now brought very close together. With recessions here, and rises in foreign markets, the proper level of adjustment may be regarded as very nearly reached, the generality of the trade feels.

Movements to mills through the usual channels here have been of minor importance for some time. For days it has been considered almost useless for the Government to hope to get out of the wool business by the auction method. Those who thought it would be a fatal step to throw open the ports to unrestricted foreign buying as long as the Government owned wool, were not slow to come to the opposite opinion. It will now be more than possible, in a growing opinion, for unrestricted sealed bids on the whole Government stock to be attempted. Neither manufacturers nor dealers have shown great desire to assume the burden of unattractive wools with which the Government offerings abound piecemeal. Factors feel they must be bulked and averaged out. Recently it has become clearer that lots taken through dealers cannot in any way be turned back to the market through them. Replacements could not be equalized. In the case of the dealer who assumed to handle an enormous bulk of the domestic clip, at a small wage, the total value of wools graded bulk greater than a private firm would handle on an ordinary buy and sell basis. Thus, the impossibility of turning them back on dealers who simply served the imposed system is obvious. In the last analysis the changes of this week seem to have brought the wool market back to a real status and sellers feel that their services in ordinary will now be in demand again.

NO RAW SILK CHANGE

Japan Market Reopens without Particular Features

The market in Yokohama reopened on Monday after having been closed since the end of 1918. There were no particular features to the resumption of business, and trading was of but a nominal character, with prices firmly held. Hope is held by most principals in the market that demand will assume a more active disposition in the course of the next week or two.

China's markets are in the same position that they have been for the last several weeks. Trading is far from an active volume, but there is no softening evidenced in holders' ideas of values.

Increased inquiry is noted in the local market, and raw silk dealers are hopeful that this is the forerunner of an active buying movement. Manufacturers are about completed on their inventory work, and are preparing to go ahead with new business. Stocks of raw silks held by manufacturers are known to be small, and dealers are confident that as soon as manufacturing conditions become clarified there will be an active demand for silk.

Prices are quoted about as follows:

Filature Kansai Double Extra Cracks	7.25
Filature Kansai Extra 13/15	7.15
Filature Best No. 1 Extra 13/15	6.95
Filature Best No. 1	6.80
Filature Kansai Extra 13/15	6.65
Filature Shinshu No. 1, 13/15	6.95

6 months basis

CHINA

Canton XXA Crack, 14/16	5.95
Canton XXB Crack, 14/16	5.80
Canton XXB 22/26	5.10

Calendars and Souvenirs

A picture of the Statue of Liberty done in blue and gold, with the United States stretched out in the distance behind, seems a very appropriate pictorial introduction to the sentiment expressed by the New England Concrete Construction Co., of Boston, who, with a fresh realization of what America means to all, extend their season's greetings to their customers.

A large practical calendar, whose dates can be seen clearly across the room has been distributed by Elmer A. Lord & Co., insurance agents of Boston.

Philadelphia Wool Scouring and Carbonizing Co.
WOOL
Scoured and Carbonized
Freight Address: Coral St. Sta., P. & R. RR. Somerset and Trenton Ave., Phila., Pa.

EAVENSON & LEVERING COMPANY
WOOL SCOURED—CARBONIZED COMBED AND STORED
Phila. and Reading Railroad Siding. CAMDEN, N. J.

CLYBOURN WOOL SCOURING CO.
Wool Scoured and Stored
1921 Mendell Street CHICAGO, ILLS.

TATTERSFIELD & CO.
G. H. TATTERSFIELD
TYRREL ST., BRADFORD
WOOLS - TOPS - NOILS
MARKS
T G.H.T T WHITES
AND
G. H .T. COLOURS
Cables, Telegrams: Glutamic, Bradford.
Codes: Western Union. A. B. C 5th Edition. Lieber. Private.
Agent: Sutcliffe & Co., Inc. 263 Summer St., Boston.

Established 1863
J. BATEMAN & CO.
Successors to JUSTICE, BATEMAN & CO.
Commission Merchants
Foreign and Domestic Wool
122 SOUTH FRONT STREET :: :: PHILADELPHI

COATES BROTHERS
FLEECE, TERRITORY AND FOREIGN
WOOL
127 Market Street Philadelphia

Farnsworth, Stevenson & Co.
Established 1848
WOOL MERCHANTS
Wools and Noils of all descriptions bought and sold on commission.
Consignments solicited
116-122 FEDERAL ST., BOSTON, MASS.

OELRICHS & CO.
WOOL IMPORTERS
AND COMMISSION MERCHANTS
11 Broadway NEW YORK 246 Summer St. BOSTON

WINSLOW & CO WOOL
DOMESTIC
FOREIGN
SOLE SELLING AGENTS
ARMOUR & CO—PULLED WOOLS
Commission Merchants
248 SUMMER ST.
BOSTON
Chicago Phila. New York

The booklet issued by The Guaranty Trust Co., of New York, on "Bank and Public Holidays Throughout the World for 1919" is something of much practical value, and like its previous issue will be very favorably received by the business community throughout the world. For several years it is stated in the introduction, there has been a steadily increasing tendency to suppress all minor holidays, such as purely religious festivals and confine the legal observance of holidays to dates of national importance. The war, it is stated, has also introduced several elements of uncertainty into the question as to whether or not certain holidays will be observed during the year 1919. It is interesting to note that the trust company think it most probable that Nov. 11 will in the future be observed in all the allied countries and in the United States as "Victory Day." The book has three divisions, first a perpetual calendar and then a calendar for 1919, showing the states and countries where holidays are observed on each date, and lastly countries and colonies of the world and states of the American Union and of the Commonwealth of Australia, arranged alphabetically with a list of the principal holidays in each. The book has 176 pages and is published at 140 Broadway, New York City.

The Wonalancet Co., usually original in these matters have, among other things, sent their clients a picture postal wishing them the "exquisitest sensations for your Christmas."

The Saco-Lowell Shops have put out a very practical combination calendar tablet printed in several colors.

The Steel Heddle Manufacturing Co., of Philadelphia, take the opportunity to wish their clients a prosperous New Year on an attractively printed card having a monogram in colors of the Stars and Stripes and a holly wreath.

The Bamford & Smith Co., manufacturers of caps, tubes, spindles and flyers have one of the most attractive 1919 calendars. The painting by J. L. Gerome Ferris, entitled "Her Weight in Gold," is reproduced in large size in the colors of the original, the figures of the bridal party with their old-time costumes of 1717 forming a most interesting group. The large calendar sheets for each month of the year will also greatly enhance the value of this gift.

A very serviceable calendar is the New Year's remembrance received from the Clinchfield Coal Co., Dante, Va. This not only includes the regular monthly data with the holidays duly designated, but each large sheet bears two smaller calendar months as well.

J. M. Prendergast & Co., cotton goods and yarn brokers, Boston, Mass., are issuing a dainty calendar in black and red tones, six months of 1920 being included as well as the full twelve months for this year. The company also states that additional calendars will be sent on request.

The Belleville Hosiery Mills, Belleville, Ill., are distributing an ideal calendar. The beautiful figure of young girlhood wearing a shimmering gown of yellow and adorned with American Beauty roses entitled "Love's Young Dream" is the extreme of grace and loveliness. The attached calendar carries the greeting "To You and Yours Happiness."

The calendar received from the Edison Storage Battery Company, showing as it does the controlling parts of the company's akaline-storage battery is most interesting and instructive.

LYONS SAMPLE FAIR

Fourth Display in March Regarded Important to Americans

A statement has been issued by the Department of Commerce to the effect that American participation in the Fourth International Sample Fair to be held at Lyons, France, from March 1 to 15, 1919, becomes increasingly desirable and important. The American Consul at Lyons has been allotted $1,000 for the rental of space at the fair for the display of American goods and catalogues by the Department of State, according to advices received from the Department of Commerce. As a result of this step, manufacturers and exporters have the privilege of renting a stand or several stands, the rental of which will be 600 francs or $116. If this is not desired, samples may be exhibited at the official Consulate stand on the payment of a fee of $25 to the fair committee. A further privilege will be the showing of catalogues in the Consular stand free of charge, the Consul and his staff making every effort to give the widest publicity to these catalogues. An entry form, copy of which may be obtained from the Bureau of Foreign and Domestic Commerce at Washington, will have to be filled out by each prospective exhibitor, no exhibits being shown unless such form has been duly signed. Manufacturers and exporters desiring to secure space at the fair should communicate at once with the Comite de la Foire, Hotel de Ville, Lyons, France, giving complete details of the character of their exhibit and enclosing the necessary fee. If, however, it is desired to place catalogues or samples in the Consular stand, this fact should also be immediately communicated to the American Consul at Lyons, and in the case of samples being exhibited, the necessary fee should be sent to the Consul.

Commercial Attache Williams, reporting from Paris under date of Nov. 22, stated that the value of the Lyons Fair in promoting Franco-American trade was very apparent and the exhibition of articles which France formerly imported from the Central Empires, such as dyestuffs, etc., should be especially useful. Mr. Williams also stated that in his opinion a fine opportunity for the display of labor-saving devices would also be afforded and the sale of this class of goods would undoubtedly be promoted if demonstration were made by American experts.

American Lunchroom Success

The lunch room conducted for employers of the American Woolen Co., sales office, Eighteenth street and Fourth avenue, served within the past year over 66,000 meals. The lunch room was re-opened Nov. 7, 1917, under the management of Paul J. Felder, steward. In January last 6,630 meals were served in the refectory, the record for the year. The second issue of *Amwoolco Yarns*, just at hand, editorially says the lunchroom has made good and records that during the year the dining-room was enlarged to its present capacity which covers nearly twice the original floor space. During this period of great advance in the cost of all foodstuffs, extremely low prices have been maintained.

COFFIN & GILLMORE

NOILS **WOOL** TOPS

WASTE

Boston Philadelphia

Wm. J. Fry Wm. G. Pancoast

Fry & Pancoast

Noils, Wool, Hair

137 South Front Street, Philadelphia

GRUBNAU BROS.

Importers and Commission Merchants

WOOL, TOPS, NOILS and HAIR

Top Makers and Commission Combers

114 Arch Street, Philadelphia, Pa.

210 Summer Street, Boston, Mass.

Mill: 2nd and Erie Avenue, Philadelphia, Pa.

AMERICAN MANUFACTURERS

OF

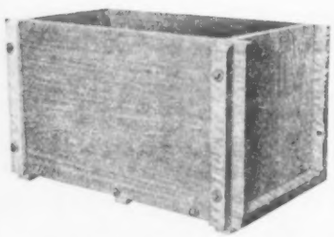
Anthraflavine

The fastest yellow known

Neponset Color Company

HYDE PARK

BOSTON MASSACHUSETTS



WOOD TANKS and VATS

ROUND or RECTANGULAR

for dyeing, bleaching and water storage

"EAGLE" TANKS ARE "QUALITY" TANKS

Write for Prices

EAGLE TANK CO.

2448 N. CRAWFORD AVE. CHICAGO, ILL.

ATLANTIC TANK & BARREL CORP.

Formerly J. Schwarzwalder & Sons, Inc.

VATS and TANKS

CYPRESS and YELLOW PINE

FOR ALL TEXTILE USES

15th and Jefferson Streets HOBOKEN, N. J.

Branch—Louisville, Ky.

?

The Textile Clearing House

?

O. D. CLIPS BIDS HIGHER

Government Sorts Get Much Better Prices at Reopening

For approximately 2,375,000 pounds of O. D. Woolen clips, bids reopened at the Base Sorting Plant, by Capt. J. C. Benson, officer in charge, Wednesday, realized much advanced prices, as high as 11 cents a pound, over the offerings of Dec. 18. In the following summary of highest bids Wednesday's high is first given and the Dec. 18 high is in parentheses: Overcoating, .17125 (.13042); wool suiting, .33125 (.2252); wool shirting, .1375 (.1076); worsted shirting, 18 (18); jerkin cloth, .0415 (.0759); punchings, .0501. On the first three grades the high bidders were B. D. Kaplan & Co., Jacobs Woolen Co. on wool shirting, A. D. Juilliard on worsted shirting, Mark Sherwin on jerkin cloth, Zeitchick & Belatsky on punchings. Other bidders were Frank B. Graves, Collings-Taylor, S. Rawitser & Co., S. Silbeman & Co., Chippewa Falls Woolen Co., John J. McCloskey, John T. Slack Corp., Mutnick Bros., L. Tulcin & Son, George Boiko & Co., William Spink, Guerin Spinning Co., Lahn & Simons, Parker, Wilder & Co., Joseph D. Murphy and National Woolen Co.

Abstract of woolen bids follows:

	Overcoating.		Worsted Suiting.		Wool Suiting.	
Names of Bidders.	Quantities. 300M	Prices. Per Lb.	Quantities. 650M	Prices. Per Lb.	Quantities. 750M	Prices. Per Lb.
B. D. Kaplan & Co.	25M	.17125	25M	.37125	25M	.33125
	25M	.16125	50M	.36125	25M	.32125
	50M	.15125	50M	.35125	25M	.31125
	50M	.14125	100M	.34125	25M	.30125
	Entire	.13125	50M	.33125	25M	.29125
	.....	.....	50M	.3125	100M	.28125
	.....	.....	50M	.31125	25M	.27125
	.....	.....	50M	.30125	25M	.26125
	.....	.....	25M	.29125	25M	.25125
	.....	.....	.....	.....	25M	.24125
	.....	.....	.....	.....	25M	.23125
	.....	.....	.....	.....	25M	.22125
	.....	.....	.....	.....	25M	.21125
Frank B. Graves	.....	.....	600M	.25	.....	.....
Collings-Taylor	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
S. Rawitzer & Co.	50M	.1217	50M	.2777	50M	.2007
	50M	.1111	50M	.2612	50M	.1912
	50M	.1079	50M	.2426	50M	.1826
	150M	.1031	100M	.2126	100M	.1716
	.....	.....	400M	.1876	.....	.....
Zeitchick & Belatsky	.....	.....	.....	.....	.....	.....
A. D. Juilliard	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
S. Silbeman & Co.	.....	.....	25M	.2525	.....	.....
Chippewa Falls Wln. Mills.	.....	.....	4M	.34	.....	.....
John J. McCloskey	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
John F. Slack Corp.	.....	.....	.....	.....	.....	.....
Mutnick Bros.	25M	.1286	25M	.2892	50M	.2276
L. Tulcin & Son	.....	.....	50M	.2831	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
Jacobs Woolen Co.	100M	.13125	.....	.....	.....	.....
	100M	.13375	.....	.....	.....	.....
	100M	.13575	.....	.....	.....	.....
George Boiko & Co.	10M	.1429	10M	.3391	10M	.2411
	.....	.....	.....	.....	.....	.....
William Spink	.....	.....	50M	.32	.....	.....
Sherwin Wool Co.	.....	.....	.....	.....	100M	.16
Guerin Spinning Co.	.....	.....	.....	.....	.....	.....
Lahn & Simons	.....	.....	50M	.3557	50M	.2507
	.....	.....	25M	.3457	50M	.2457
	.....	.....	25M	.3378	50M	.2369
	.....	.....	.....	.....	.....	.....
Parker, Wilder & Co.	.....	.....	50M	.2801	200M	.2050
Star Woolen Co.	100M	.1401	150M	.2601	300M	.1950
	200M	.1391	150M	.2505	250M	.1801
	.....	.....	300M	.2501	.....	.....
Joseph D. Murphy	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....
National Woolen Co.	.....	.....	25M	.305	.....	.....
	.....	.....	25M	.28062	.....	.....
	.....	.....	25M	.26125	.....	.....
	.....	.....	25M	.25062	.....	.....
	.....	.....	25M	.235	.....	.....
	.....	.....	25M	.22062	.....	.....
	.....	.....	25M	.20062	.....	.....
	.....	.....	50M	.15187	.....	.....

	Stripped Black Edges.		Worsted Clips (Cotton Edges).	
	Quantities. 22M	Prices. Per Lb.	Quantities. 12M	Prices. Per Lb.
B. D. Kaplan & Co.	.....	.11125	.....	.2255
Mutnick Bros.	.....	.....	.....	.1416
L. Tulcin & Son	.....	.....	.....	.2004
Jacobs Woolen Co.	.....	.11875	.....	.....
Geo. Boiko & Co.	10M	.0889	.....	.1791
William Spink	.....	.....	.....	.08
Lahn & Simons	.....	.....	.....	.2278
Star Woolen Co.	.....	.05	.....	.1501
National Woolen Co.	.....	.....	.....	.18625
S. Rawitzer & Co.	.....	.0806	.....	.1576
Zeitchick & Belatsky	.....	.07625	.....	.08625
John T. Slack Corp.	.....	.1327	.....	.1155

Calendars and Souvenirs

The unique calendar cards from the McCarthy Aniline & Extract Co., for use in the brass standard received from the firm last year, effectively show "The Colors That Will Not Run" in the various flags of the Allies.

The B. F. Boyer Co., worsted yarns, Camden, N. J., is issuing its yearly calendar. The clear cut of the company's plant at the top of the card attracts immediate attention, while this is effectively offset by the blue background with its white lettering. The same color scheme is also carried out in the calendar attached below.

A handsome brass desk pad has come to hand from the Sherwin Wool Co., woolen rags, Boston, Mass. This not only has the regular memoranda slips but also bears a unique device for showing the day and dates for the calendar year.

A restful landscape in beautiful soft tones characterizes the New Year's remembrance of the Mansfield Bleachery, Mansfield, Mass. Attached to this appealing scene is an artistic calendar for 1919.